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ANALYSIS OF VIETNAM WEAPONS QUESTIONNAIRES (M16A1 RIFLE) AND OT--ETC(U)
1969

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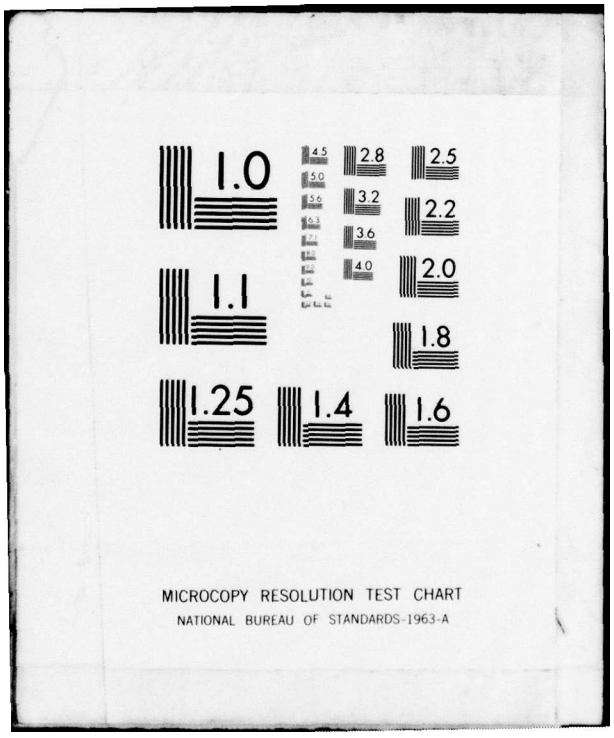
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(6) ANALYSIS OF VIETNAM WEAPONS QUESTIONNAIRES (M16A1 RIFLE) and Others.

(12) 117

Weapons Dept., USAIS

(11) 1969

See also: Summary of Task Inventory for BCT Marksmanship Training

038600 Gen

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FOR THE CHIEF:

ALEXANDER NICOLINI
Major, Infantry
R&D Coordinator

FOREWORD

As a result of the Army Training Center Commanders Conference conducted at Fort Benning in December 1968, USCONARC directed that the USAIS evaluate all live firing exercises conducted in both BCT and Infantry AIT. In order to conduct an extensive evaluation it was decided that the job requirements and skill levels with light Infantry weapons for both the BCT and Infantry AIT graduate must be determined.

In order to develop a realistic initial data base the Weapons Department prepared a series of Questionnaires which were mailed as a packet to each of the 25 Infantry brigades in Vietnam. Each brigade packet consisted of the following questionnaires:

Rifleman - 8 each
Machinegunner - 4 each
Grenadier - 4 each
Squad leader - 2 each
Platoon sergeant - 1 each
Platoon leader - 1 each
Company commander - 1 each
Battalion commander - 1 each
Brigade commander - 1 each

The commanders were requested to distribute the questionnaires through a single chain of command; however, this did not occur in all units at platoon level. The questionnaires were designed so that responses from one level of command would compliment, validate or invalidate responses from other levels of command. The questionnaires also contained questions which establish experience levels of individuals or groups.

Elements of 17 brigades returned completed questionnaires. In order to reinforce and enlarge this data bank 150 additional questionnaires were prepared and distributed to officer Advanced Course students.

This document contains an initial analysis of consolidated responses from 208 riflemen, 52 squad leaders, 26 platoon sergeants, 22 platoon leaders, 20 company commanders, 16 battalion commanders, 7 battalion staff officers, 6 brigade commanders, ~~and~~ 1 brigade executive officer and 142 officer Advanced Course students.

ANALYSIS OF QUESTIONS PERTAINING

TO RIFLEMEN

CONTENTS

ANALYSIS OF RIFLEMAN QUESTIONNAIRES

1. Background:

a. Source. Information contained in this document is based on questionnaires completed by 208 riflemen serving with 17 Infantry Brigades in RVN. Individuals who supplied this data had served an average time of 5.7 months in-country and indicated that they had participated in a wide variety of combat operations. This is confirmed in question 2 of the attached questionnaire. As an example, 83% indicated they had participated in airmobile assaults; 80% had participated in cordon and search operations, etc. Results obtained from question 3 indicate approximately 53% of the personnel had been in close contact with enemy forces.

b. Validity. It should be emphasized that all questions were not answered by each individual. Therefore, consolidations of answers received, which are recorded on the attached questionnaire (Incl 1), cannot mathematically be balanced to obtain a total response of 208 answers. However, it is very rewarding to analyze individual questionnaires and be able to detect a high degree of honesty and sincerity of individuals. With the exception of 3 questionnaires, questions pertaining to target detection, known and probable hits, appear to be modest in nature. As an example, individuals stated they had fired at clearly defined enemy of various numbers, yet indicated they knew they had not successfully engaged the target. Those questionnaires that indicated sightings of numerous enemy personnel were cross check against answers received from other members in the same squad and platoon and it was found that generally all members of the unit were consistent in their answers.

c. MOS and Grade. All personnel were trained in the MOS of 11B with the exception of 12 individuals. The rank of individuals varies from E2 to E5 with time in-country ranging from 1 to 11 months. With minor exceptions it appears individuals supplied information which they considered valid and correct, to the best of their knowledge.

2. Analysis:

a. Training Requirements (Questions 1 and 20). Data obtained from question 1 indicates that additional light infantry weapons training is conducted in-country for the majority of replacement personnel. Over 58% of these replacements received training, other than battlesight zeroing on the M16A1 rifle, M79, M60, Hand Grenades, Claymore Mine and M72 (LAW). 24% received additional training with the .45 Caliber Pistol. A wide variety of weapons have been used by these personnel during combat operations, despite the fact they are supposedly filling TOE riflemen positions. This could be an indication of the personnel turbulence within the Infantry platoons which requires frequent changes in job assignments, or additional M79's and M60 Machineguns being utilized by the unit. It is noted that

74% of these riflemen have employed Claymore Mines and Hand Grenades of various types. Responses to question 20 (weapons used) somewhat clarifies the need for additional in-country weapons training indicated in question 1.

b. Target Detection (Questions 3, 4, 5 and 21). It would appear after analyzing responses to these questions that 57% of the personnel queried were able to detect targets during daylight hours and 35% during the hours of darkness. Eighteen individuals, which represents 8.7% of the riflemen, stated they had utilized the starlight scope mounted on the M16A1 rifle, and are probably included in the 35% of the personnel who detected enemy targets at night. Therefore, it is possible that only 26.3% of the riflemen detected and engaged targets at night without the aid of night vision devices.

c. Hit Probability (Questions 4 and 5).

(1) 119 individuals stated they had seen, and engaged with fire, 732 (+) clearly identified enemy targets during daylight hours. The number of enemy personnel sighted is very flexible in that a few individuals used adjectives such as "numerous", "boo-coo", or other such terms to which an exact value cannot be attached. Of the total sightings reported the riflemen obtained a total of 404 known or probable hits. In analyzing individual questionnaires, it seems quite apparent that some individuals were exposed to situations where massed enemy forces were sighted, such as platoon size units. Therefore, the hit probability of an individual in this situation would be greatly reduced because of his inability to engage multiple targets within a short time frame. However, using the minimum figure of 732 target sightings, the hit probability of the riflemen including probable hits is less than 56%, during daylight hours. It is interesting to note that 102 individuals who engaged clearly identified targets obtained their hits between the ranges of 0 -100 meters. 25 individuals indicated they had obtained known or probable hits at ranges from 100-200 meters. Only 17 of these riflemen thought they had obtained hits beyond 200 meters.

(2) The riflemen who engaged enemy personnel during the hours of darkness reported identifying in excess of 396 targets. Here again, some questionnaires contained infinitive adjectives which could not be accurately included in the total number of targets sighted. Of the total sightings reported, individuals indicated a total of 221 known or probable hits. Using the minimum figure of 396 sightings indications are that the hit probability on visible targets during the hours of darkness is less than 55%. 42 individuals indicated their hits were obtained between ranges of 0-50 meters, whereas, 25 riflemen reported hits at ranges beyond 50 meters, the majority of which were reported as probable hits. In analyzing question 5, a consideration in probable or known hits beyond the 50 meter range is the fact that question 21 indicated that 17 to 13 personnel have used the starlight scope mounted on their M16A1 rifles. Another consideration is that 196 of these individuals have participated in an

unknown number of night ambushes which under normal circumstances engages targets at very close ranges utilizing a combination of weapons to include Claymore mines. The number of known hits recorded in the question 5 a could include hits inflicted by weapons other than the M16A1 rifle which may have been employed by the rifle squad.

d. Automatic Fire (Questions 6, 7 and 9).

(1) It is derived from responses to question 6 that 86.8% of the riflemen use the automatic mode of fire. In order to determine when automatic fire is utilized, individuals were required to give multiple answers in question 7 to cover situations under which they employed the automatic mode. The following data was received:

When Used	% Of Riflemen	Average Ranges
On orders from leader	34.6%	37 to 137 meters
To engage single personnel	22.1%	25 to 97 meters
To engage several personnel	56.7%	28 to 120 meters
Suspected enemy locations	44.2%	39 to 122 meters
To engage enemy bunkers	22.6%	31 to 103 meters
To engage automatic weapons	25.5%	48 to 142 meters
All the time	11%	40 to 128 meters
Hardly ever	18.7%	N/A

(2) Indications are that the following situations have a direct influence on the riflemen's decisions to engage targets utilizing the automatic mode:

(a) Target located within approximately 125 meters of the firer.

(b) Engagement of multiple targets.

(c) Engagement of suspected enemy locations.

(d) Absence of orders from unit or team leaders.

(3) Additional factors which should be considered in analyzing the employment of automatic fire are as follows:

(a) The mental shock experienced by the average individual when several enemy targets are detected at close ranges (Immediate Action Drill).

(b) A tendency to deliver a high volume of fire when the size and location of an enemy force is unknown.

(c) A rifle squad not adequately trained in fire distribution techniques would influence individual riflemen to fire area type fire rather than deliver accurate fire in an assigned sector.

(4) Despite the high density of riflemen that fire in the automatic mode (86.8%), 75% never utilize the bipod to stabilize the rifle.

e. Target Engagement (Questions 10, 11, 12, 13 and 14).

(1) Background:

(a) Responses to part a of these questions cannot mathematically be correlated to part c of the same question because some individuals indicated they used semiautomatic fire but in part c they indicated 2-3 or 3-5 round bursts were fired. It would appear that the most logical assumption that can be made, under these circumstances, is that certain riflemen consider two or more rounds fired in rapid succession a burst. This assumption is based on the fact that selection of a mode of fire with the M16A1 requires a manual movement of a selector lever, and the selected mode is clearly marked on the weapon. It therefore appears more feasible that the individual would misinterpret the term "burst" rather than "automatic" or "semiautomatic".

(b) In analyzing the data on target engagement it should be remembered that only 57% of the riflemen have seen and engaged targets during daylight hours and 35% at night. A review of individual responses to questions 4 and 5 reflected that 36.7% of the riflemen (78) have not engaged a clearly defined target during the day or night. Of this group, 5.7% (12 individuals) believe or know that they have hit enemy personnel they could not clearly see. Based on this information, it is possible that 31% of the personnel providing input have not engaged enemy targets. It is derived that, if targets were engaged by these personnel, they fired at suspected locations which could influence the mode of fire selected (see para 2d(2) above).

(2) Mode of Fire: It is re-emphasized that 62 personnel (30%) do not change their mode of fire regardless of time pressure, type target or range. (Reference: para 2d(1) above). Shown in chart 1 is the application of automatic versus semiautomatic fire when the individuals were under extreme time pressure or receiving enemy fire. It appears the average rifleman tends to switch from automatic to semiautomatic fire at a range of approximately 125 meters. It is interesting to compare data on this chart with the average ranges in paragraph 2d(1) above because they reflect the same information. Chart 2 reflects the modes of fire utilized when there is a lesser degree or no time pressure involved. The questionnaires did not contain a question on engaging targets between 0 and 50 meters without time pressure because it was assumed that the closeness of the target would generate time pressure. When charts 1 and 2 are compared, it is apparent that time pressure and enemy fire tend to induce the rifleman to use the automatic mode of fire.

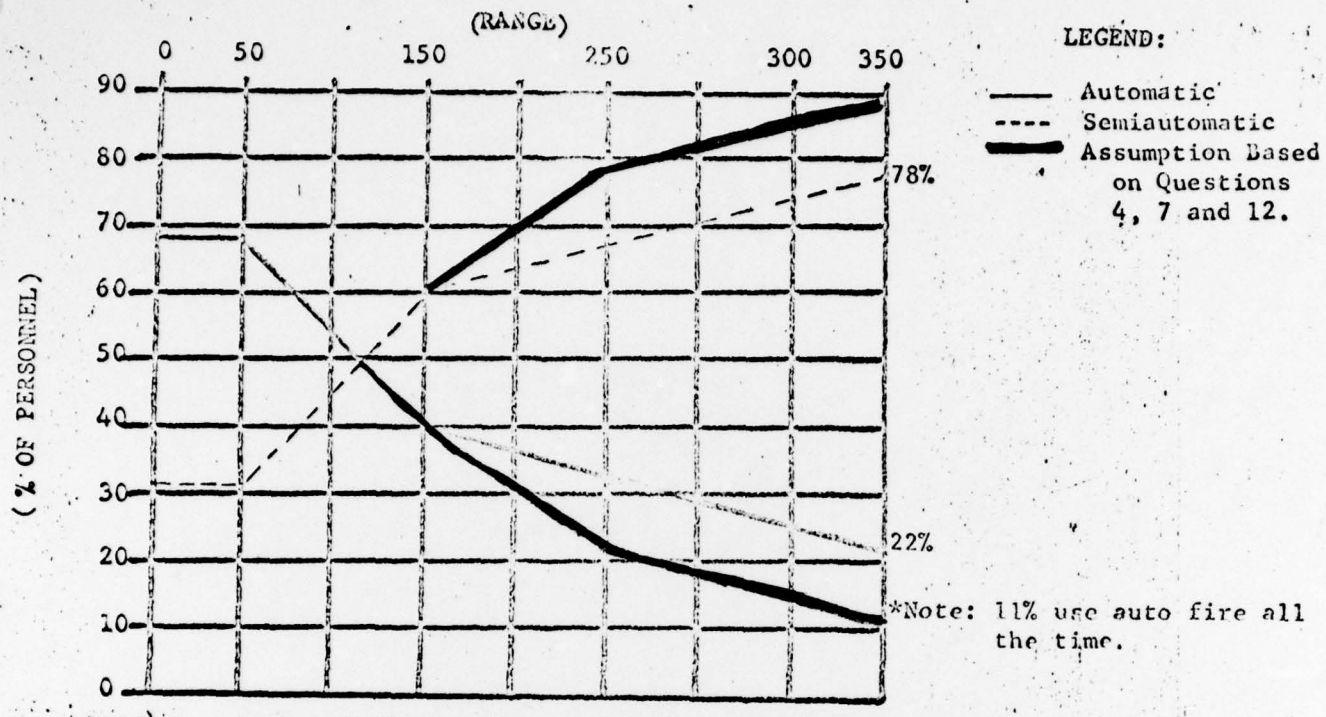


CHART 1: Automatic Vs. Semiautomatic Fire Under Time Pressure

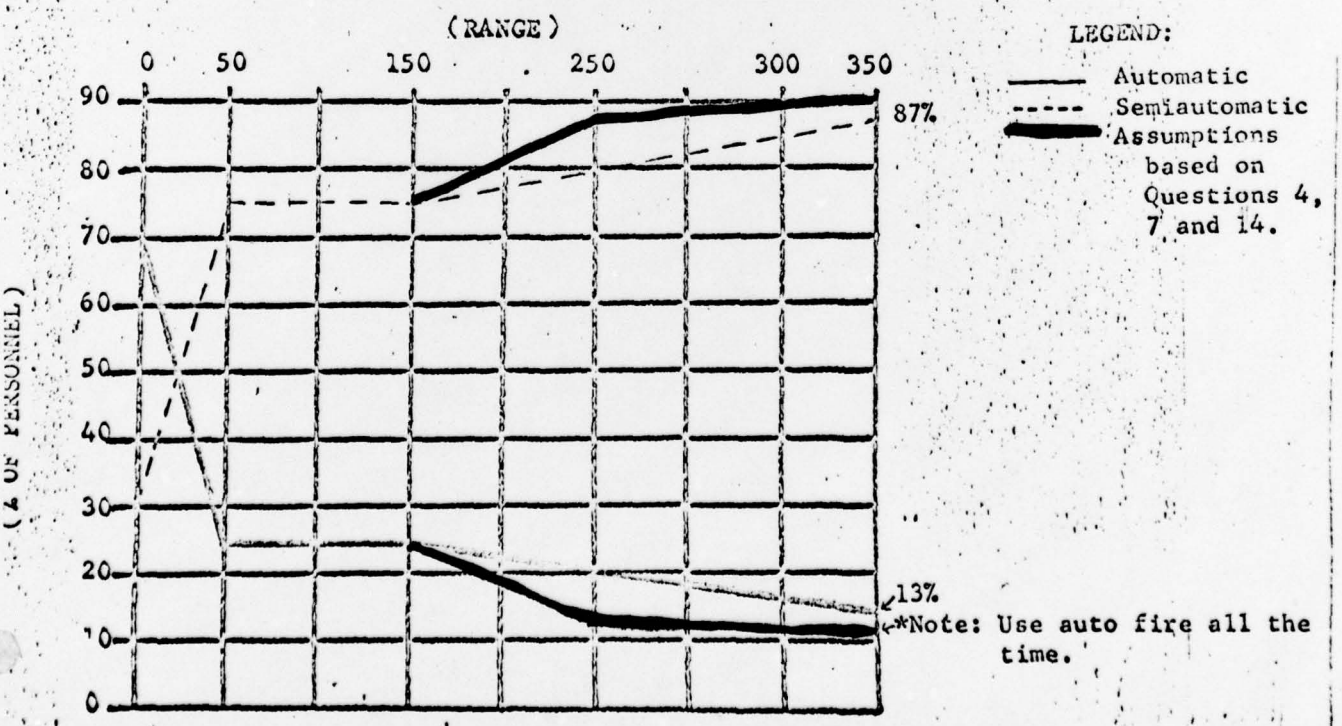


CHART 2: Automatic Vs. Semiautomatic Fire with No Time Pressure.

(3) Sighting Techniques (part b of questions):

(a) Individuals were given the following options to identify the sighting techniques they used at various ranges when receiving fire and when not receiving fire: carefully aimed, quick aimed, quick kill, and underarm pointing technique. Chart 3 indicates the number of riflemen that use the sights to deliver carefully or quick aimed fire at various ranges under time pressure or when receiving fire and those that do not use the sights, but utilize Quick Kill or underarm pointing techniques. It appears that a majority of these personnel use pointing techniques, when under pressure, to engage targets out to a range of approximately 100 to 125 meters. Use of the pointing technique beyond 50 meters might be required because of the type target being engaged, i.e., limited exposure time.

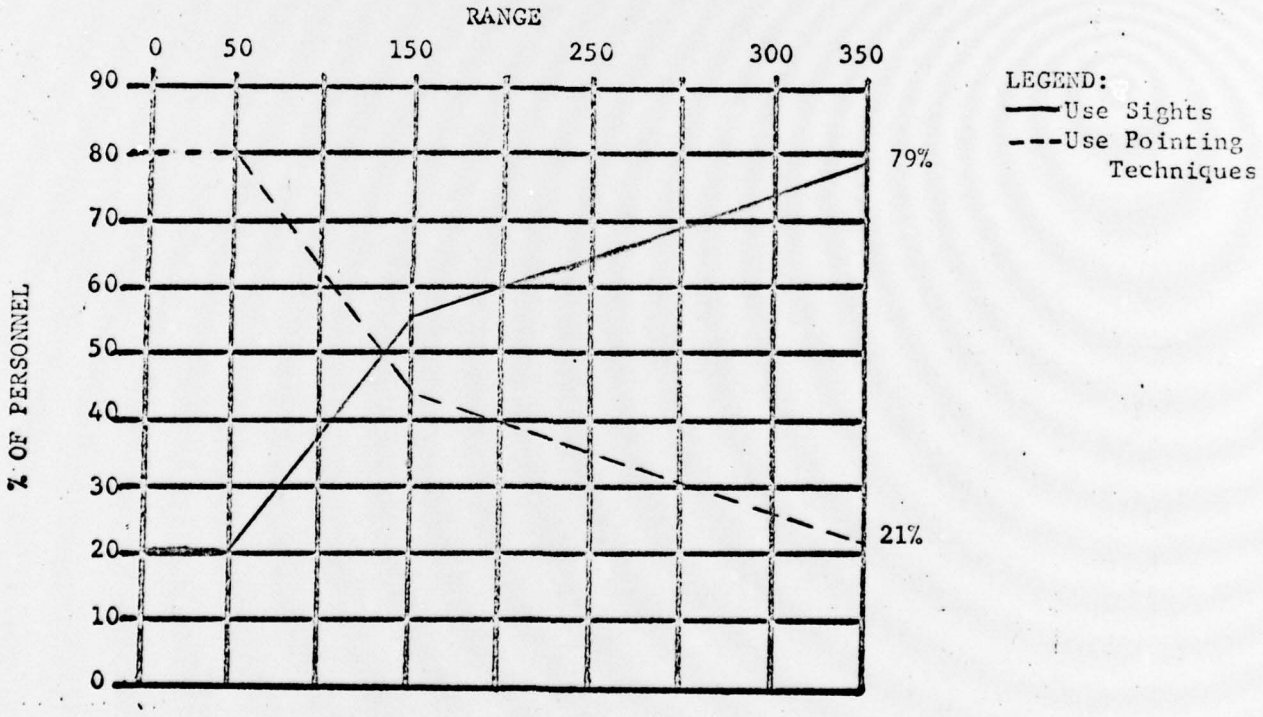


Chart 3: Sighting Techniques Utilized When Under Time Pressure

Chart 4 indicates the sighting techniques utilized when there is no time pressure or enemy fire involved. There appears to be very definite relationship between Charts 1 and 3 and Charts 2 and 4. If the application of automatic fire in Chart 1 is compared to the utilization of pointing

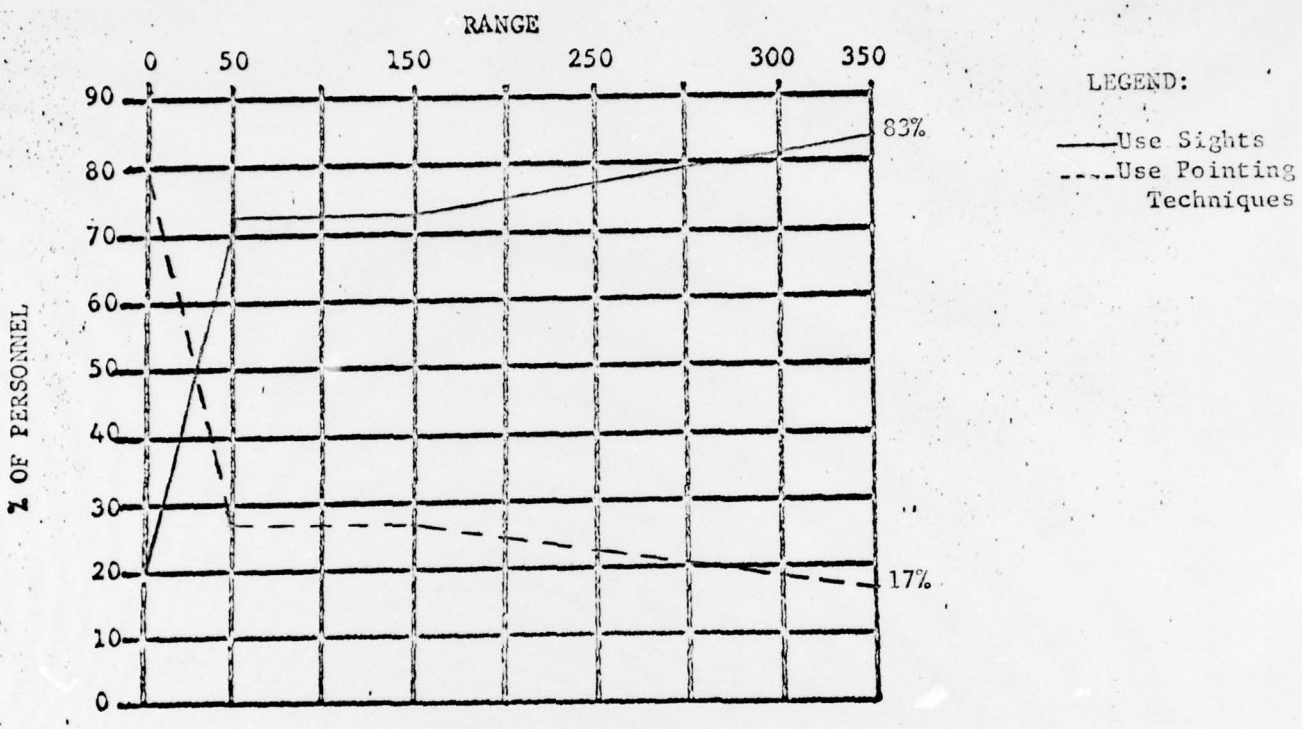


Chart 4: Sighting Techniques Utilized When Not Under Time Pressure

techniques in Chart 3, there appears to be a strong indication that personnel tend to use the pointing technique when firing in the automatic mode. A comparison of Charts 2 and 4 reveals the same indication, even though there is no time pressure or enemy fire involved.

(b) The underarm firing position is taught during AIT Technique of Fire training as an assault fire technique for automatic riflemen. Responses to the questionnaires indicate 38% of the riflemen use this technique to engage targets from 0 to 50 meters; 14.5% if receiving fire at ranges from 50-150 meters. If no enemy fire is involved, 9.6% still use this pointing technique at ranges from 50-150 meters and 6.4% indicated they even used this technique for targets seen or suspected at ranges from 150 to 350 meters. The only logical explanation, that readily comes to mind, is that the individuals utilize the automatic mode to deliver area fire, and use the underarm position in an attempt to stabilize the weapon.

(4) Technique of Fire (Part c and d of Questions).

(a) Data received on the number of rounds fired per trigger pull at various ranges, while receiving and not receiving enemy fire, has been combined with data concerning methods of target engagement in chart 5 below.

		NUMBER OF ROUNDS FIRED PER TRIGGER PULL					DISTRIBUTION OF FIRE (TYPE TARGET)		
LINE NO	RANGE	1 RD	2-3 RD BURST	3-5 RD BURST	5-10 RD BURST	20 RD BURST	SING	MULT	AREA
1	0-50	21%	35.5%	39%	4%	.5%	20%	35%	45%
2	50-150 rec fire	44%	29%	19%	7%	1%	39%	28%	33%
3	50-150 no fire	59%	27%	11%	3%	0%	53.5%	20.5%	26%
4	150-350 Rec Fire	69.5%	21%	7.5%	1.5%	.5%	47%	24%	29%
5	150-350 No Fire	79%	13.5%	5.5%	1.5%	.5%	66.5%	33.5%	Not Ask

Chart 5: Technique of Fire

As stated in paragraph 2 e (1) (a) above, the percentages in the single round column are not accurate in that some individuals considered 2 or more rounds fired in rapid succession as a burst. It is believed the percent of personnel that fire single rounds is higher than shown especially in lines 1, 2 and 4 which involves time pressure and enemy fire.

(b) Here again, it can be detected that extreme time pressure and enemy fire causes the average rifleman to fire longer bursts at multiple and area targets. There appears to be some correlation between the percent of individuals that fire 2-3 round bursts and those that engage

multiple targets. There is also an indication that personnel engaging targets from 0-150 meters with bursts from 3-20 rounds, while under pressure, engage area type targets.

(5) Immediate Actions (Part e of Questions). When the enemy is seen or suspected at ranges from 0-350 meters, individuals stated they would react as shown in chart 6 if fired upon by enemy forces.

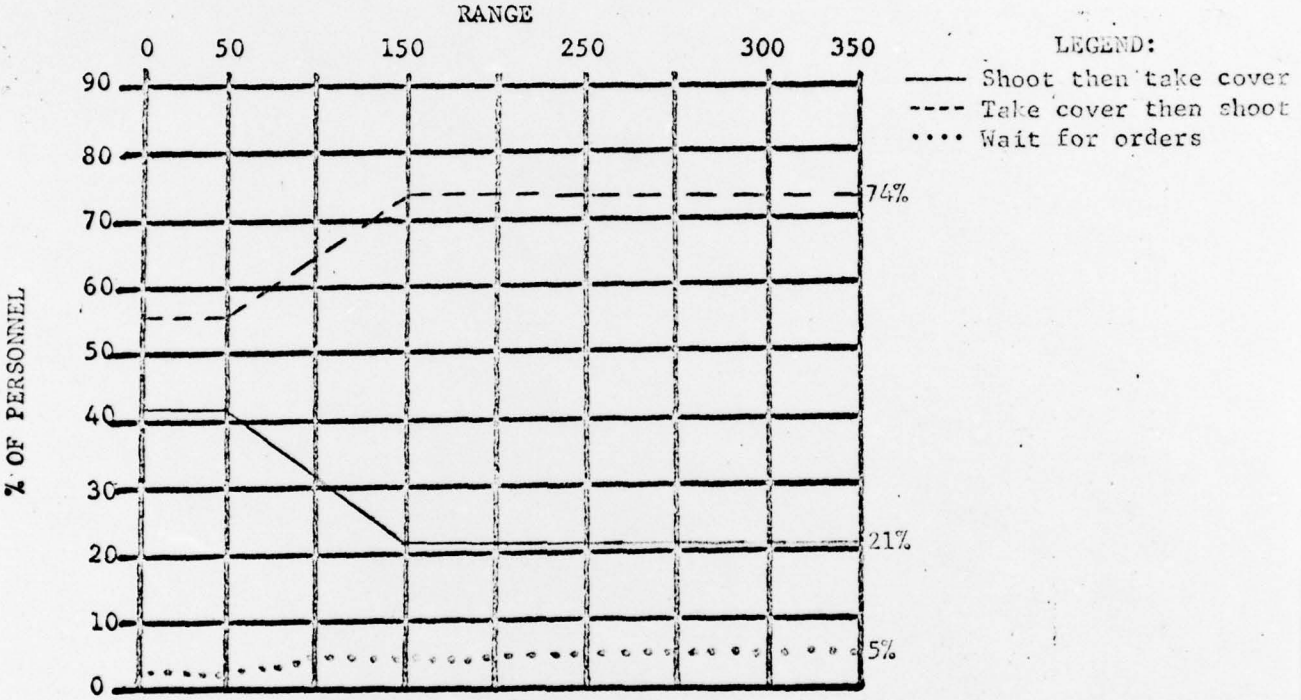


Chart 6: Immediate Action When Receiving Fire or Under Extreme Time Pressure

Chart 7 reflects action taken when not under fire. Questionnaires did not contain a question on immediate actions for ranges from 50-150, therefore, that portion of the chart should be considered as an assumption. It is believed noteworthy that only 17% of the riflemen wait for orders to engage targets between 150 and 350 meters.

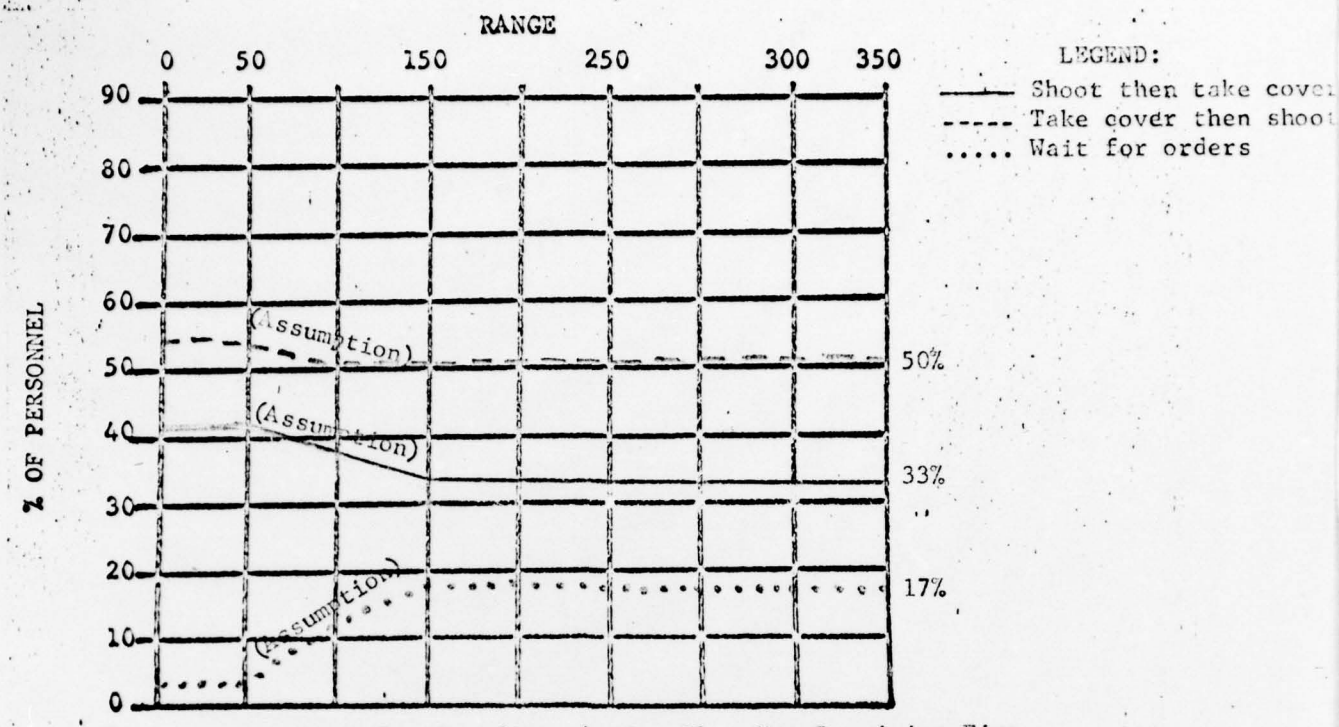


Chart 7: Immediate Action When Not Receiving Fire

(6) Firing Positions: (Part e to Questions 11, 12, and 14).

(a) When this questionnaire was prepared it was assumed that riflemen engaging targets under extreme time pressure at ranges from 0-50 meters would use the standing position. However, if 55% take cover before shooting it is highly probable all firing positions are utilized. The following positions are utilized when receiving enemy fire:

RANGE	STANDING	KNEELING	SITTING	PRONE
50-150	13.5%	19%	1.5%	66%
150-350	15%	23.5%	4.5%	57%

The following are utilized when not receiving fire:

150-350	26.5%	25.5%	3.5%	44.5%

(b) It is difficult to explain the low density of personnel that use the prone position to engage targets at extreme ranges. There is a possible correlation between the percent of personnel that use the standing position and those that use pointing techniques (see charts 3 and 4). The nature of the target (moving), and terrain

characteristics may require individuals to rapidly engage targets from dense vegetation in which the prone position cannot be utilized. However, if 57% of the riflemen can fire from the prone position to engage targets from 150-350 meters while receiving enemy fire, it would appear that a higher percent could fire from the prone when not receiving fire because the rifleman should have time to select a good firing position before engaging the target. The small percent of personnel (17%) that indicated they wait for orders before engaging targets between 150 to 350 meters tends to indicate a lack of fire control and supervision in positioning the rifle squad before engaging enemy targets. It should also be noted that the sitting position is seldom used at any range.

f. Effectiveness of Fire: (Question 18)

(1) In this question individuals were asked to specify how effective their fires had been at various ranges. The riflemen were asked to evaluate their effectiveness by checking one of the following descriptive phrases:

(a) Hardly ever miss

(b) About half and half

(c) Hardly ever hit

In order to analyze this data, a hit probability of 80% is assumed for the term "hardly ever miss"; 50% for "half and half"; and 20% for "hardly ever hit". The following formula is used to develop the average hit probability shown in Chart 8. (Responses X 80%) + (Responses X 50%) + (Responses X 20%) ÷ Total Responses = Average Hit Probability

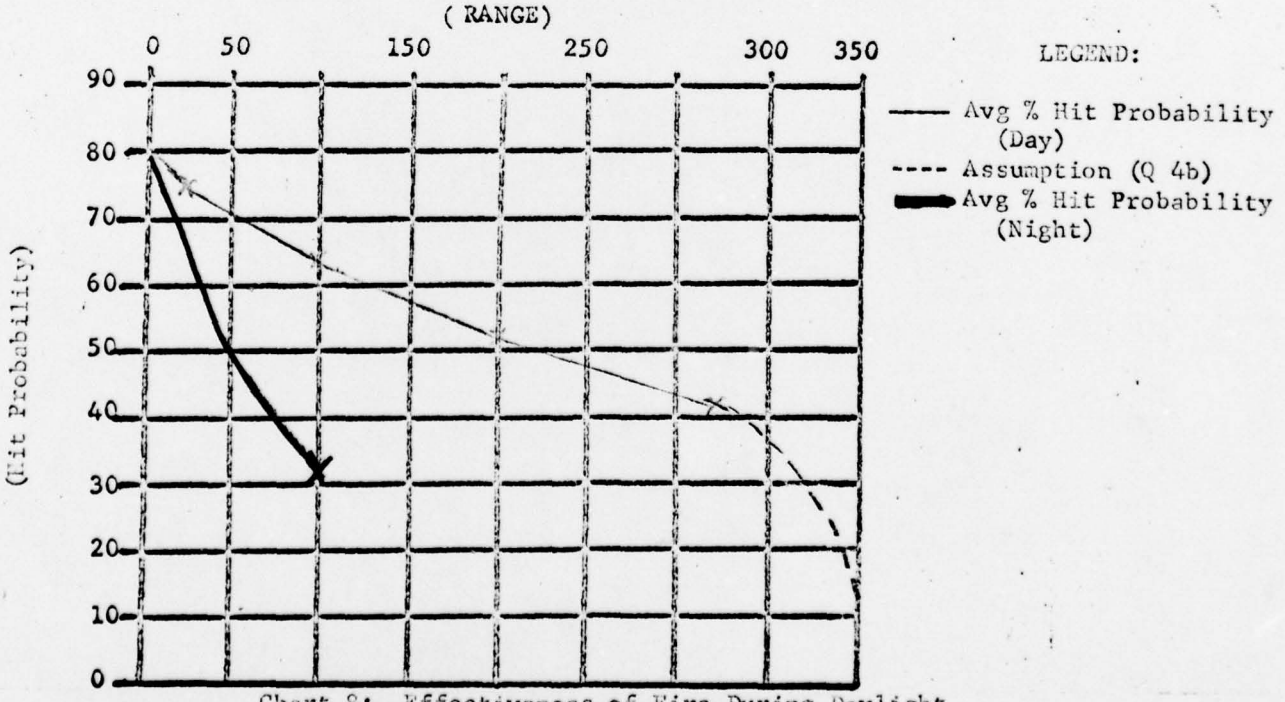


Chart 8: Effectiveness of Fire During Daylight

(2) Using the same analysis technique as described above, the effectiveness of fire at night is as shown in red on chart 8.

g. Hand Grenades (Questions 15 and 16). Data received indicates the riflemen use a wide variety of hand grenades. The fragmentation and smoke grenades are the most commonly used. Responses to utilization of the cook-off technique indicate 7.5% of the individuals use this technique often; 20.5% seldom, and 72% never use it.

3. Conclusions. The following conclusions are bold in nature and are designed to provoke immediate evaluation, inclusion of additional criteria into proposed marksmanship sub-test, and research for available criterion obtained from previous tests and evaluations.

a. The 208 questionnaires received from riflemen were completed in a conscientious manner and contain data which the individuals believe to be correct. (Reference Para 1b and 1c).

b. Additional or improved light Infantry weapons training is needed in AIT for MOS 11B (Ref Para 2a).

c. Additional emphasis should be placed on realistic target detection training especially during the hours of darkness. (Reference Para 2b).

d. Hit probability during daylight hours, on targets from 100-200 meters is not an acceptable standard. (Ref Para 2c(1)).

e. Hit probability during hours of darkness on targets from 0-50 meters is not an acceptable standard (Ref Para 2c(2)).

f. There is a requirement to train MOS 11B personnel to engage close range targets with automatic fire using quick kill techniques (Ref Para 2e(2) chart 1).

g. Close range multiple targets induce the use of the automatic mode of fire (Ref Para 2d(2)).

h. The bipod is seldom if ever used by riflemen in RVN (Ref Para 2d(4)).

i. Automatic fire is utilized by a majority of the riflemen to engage targets out to approximately 120 meters if they are receiving fire, or the target is within 50 meters. (Ref Para 2e(2)).

j. Automatic fire is being indiscriminately utilized by approximately 13% to 25% of the riflemen (Ref Para 2e(2)).

k. When placed under time pressures or receiving enemy fire, a majority of individuals tend to fire in the automatic mode without using the rifle sights or bipod to engage targets at ranges from 0 to 200 meters. (Ref Para 2e(2) and 2e(3)).

l. Individuals tend to use the pointing technique of sighting when the automatic mode is fired.

m. The underarm firing position is utilized in an attempt to stabilize the M16A1 rifle when fired in its automatic mode.

n. Fire distribution techniques are not being properly utilized by the rifle squads (para 2e(4)).

o. Only 42% of the riflemen apply Quick Kill techniques, as taught in BCT and AIT, i.e., shoot first then take cover (ref para 2e(5), chart 6).

p. Initial engagement of enemy forces by fire is not controlled by a large majority of the small unit leaders. (Ref para 2e(5) chart 7).

q. The sitting position is seldom if ever used by riflemen in RVN (ref para 2e(6)).

r. Riflemen do not select the best firing position available before engaging enemy forces. (Ref Para 2e(6)).

s. The average rifleman believes his fire to be more effective than it actually is. (Ref Paras 2e and 2f, chart 8).

t. There is a need for AIT graduates to be thoroughly familiar with hand grenade cook-off techniques. (Ref para 2g).

QUESTIONNAIRE
RIFLEMAN

This questionnaire is designed to assist the Weapons Department of the United States Army Infantry School, Fort Benning, Georgia, in accumulating raw data concerning critical combat skills, knowledges, and performances required of the Light Weapons Infantryman MOS 11B10, which should, upon being compiled and tabulated, provide certain information which will be used to improve marksmanship training programs for the Light Infantry Weapons.

You have been selected by your Squad Leader on the basis of your combat experience and knowledge to complete this questionnaire. Please answer each question and parts of questions as completely as possible by checking the appropriate block or blocks as they apply and return the questionnaire to your Squad Leader.

RANK 208 Individuals, MOS for which you were trained 196 - 11B10; 3 - 11H10; 4 - 11C10; 2 - 11E10
present MOS 11B, length of time in Vietnam 5½ (Avg) (Months),
Squad _____, Platoon _____, Company _____,
Battalion _____, Brigade 17 Brigades, Division _____.

1. What in-country weapons training other than battlesight zero have you had since your arrival in Vietnam?
   a. M16A1 rifle 180
   b. M79 grenade launcher 144
   c. M60 machinegun 137
   d. .45 caliber pistol 50
   e. Hand Grenades 144
   f. Claymore mines 156
   g. M72 (LAW) 121

2. What types of missions have you been on? (Indicate frequency)
   a. airmobile assault 174
   b. mechanized offensive operation 95
   c. cordon and search 166
   d. base security 181
   e. long range patrol 63
   f. night ambush 196
   g. short range night patrol 121
   h. reconnaissance in force 144
   i. road clearing 120

3. Have you been ambushed by an enemy force? Yes 111 No 95

4. During daylight hours, have you ever seen a clearly defined enemy and fired at him? Yes 119 No 86. If yes, how many have you fired at? 732+

   a. Do you know if you hit any of them? Yes 64 No 79. If yes, how many? 166
   b. Do you think you hit any of them? Yes 86 No 37. If yes, how many? 238 What were the estimated ranges? (Meters)

      0-50 54
      50-100 48
      100-200 25
      200-350 9
      beyond 350 8

5. During the hours of darkness, have you seen an enemy and fired at him? Yes 73 No 132. If yes, how many have you fired at? 396+

   a. Do you know if you hit any of them? Yes 24 No 77. If yes, how many? 44.
   b. Do you think you hit any of them? Yes 39 No 53. If yes, how many? 177+. What was the estimated range? (Meters)

0-10 4	50-100 19
10-30 16	beyond 100 6
30-50 22	

6. Do you fire your rifle in both its automatic and semiautomatic mode? Yes 178 No 27

7. When do you use the M16A1 rifle in its automatic mode?

When used	Ranges at Which Used
On orders from leaders 72	37.2 to 137.1 meters
When you see a single enemy personnel 46	25.4 to 97.2 meters
When you see several enemy personnel 118	28.2 to 120.0 meters
When you cannot see any enemy but fire at suspected locations 92	39.3 to 122.6 meters
To fire at enemy bunkers 47	30.7 to 103.5 meters
To fire at enemy automatic weapons 53	47.9 to 142.5 meters
All the time 23	40.2 to 127.9 meters
Hardly ever 39	- to - meters

8. Do you carry the bipod legs for the M16A1 rifle on operations? Yes 14 No 158

9. When do you use the bipod for the M16A1 rifle?

When Used	Ranges at Which Used
All the time 6	XXXXX to XXXX meters
Offense only 2	XXXXX to XXXXX meters
Defense only 9	XXXXX to XXXXX meters
Defense and Offense 8	XXXX to XXXXX meters
Never 157	

10. When engaging enemy targets, seen or suspected, at ranges from 0 to 50 meters and under extreme time pressure, what type fire would you use?

    a. semiautomatic 62; automatic 141
    b. carefully aimed 9; quickly aimed using the sights 32; pointing type not using sights fired from the shoulder 86; pointing type underarm 78.
    c. single rounds 38; 2-3 round bursts 64; 3-5 round bursts 70; 5-10 round bursts 7; 20 round burst hose effect 1.
    d. fire at single targets 36; fire at groups of personnel 63; fire at the area 79.
    e. shoot first then take cover 78; take cover then shoot 101; wait for orders 5.

11. When engaging enemy targets seen, or suspected, at ranges from 50 to 150 meters, while receiving enemy fire, what type fire would you use?

a. semiautomatic 122; automatic 83.
b. carefully aimed 36; quickly aimed using the sights 72; pointing type not using the sights, fired from the shoulder 63; pointing type underarm 29.
c. single rounds 84; 2-3 round bursts 55; 3-5 round bursts 36; 5-10 round bursts 13; 20 round burst hose effect 2.
d. fire at single targets 68; fire at groups of personnel 49; fire at the area 58.
e. shoot first then take cover 39; take cover then shoot 133; wait for orders 11.
f. In the Offense, use the standing position 26; use the kneeling position 36; use the sitting position 3; use the prone position 127.

12. When engaging enemy targets seen, or suspected, at ranges from 150 to 350 meters, while receiving enemy fire, what type fire would you use?

a. semiautomatic 151; automatic 42.
b. carefully aimed 98; quickly aimed using sights 61; pointing type not using the sights fired from the shoulder 35; pointing type underarm 6.
c. single rounds 128; 2-3 round bursts 39; 3-5 round bursts 14; 5-10 round bursts 3; 20 round burst hose effect 1.
d. fire at single targets 87; fire at groups of personnel 44; fire at the area 53.
e. shoot first then take cover 39; take cover then shoot 140; wait for orders 10.
f. In the offense, use the standing position 29; use the kneeling position 45; use the sitting position 9; use the prone position 109.

13. When engaging enemy targets seen, or suspected, at ranges from 50 to 150 meters, while not receiving enemy fire, what type fire would you use?

a. semiautomatic 147; automatic 49.
b. carefully aimed 91; quickly aimed using the sights 46; pointing type, not using the sights, fired from the shoulder 32; pointing type underarm 16.
c. single rounds 109; 2-3 round bursts 50; 3-5 round bursts 20; 5-10 round bursts 5; 20 round burst hose effect 0.
d. fire at single targets 91; fire at groups of personnel 35; fire at the area 44.

14. When engaging enemy targets seen, or suspected, at ranges from 150 to 350 meters, while not receiving enemy fire what type fire would you use?

a. semiautomatic 166; automatic 24.
b. carefully aimed 129; quickly aimed using the sights 27; pointing type not using the sights, fired from the shoulder 19; pointing type underarm 12.
c. single rounds 145; 2-3 round bursts 25; 3-5 round bursts 10; 5-10 round bursts 2; 20 round burst hose effect 1.
d. fire at single targets 105; fire at groups of personnel 53.
e. shoot first then take cover 52; take cover then shoot 78; wait for orders 26.
f. In the offense, use the standing position 47; use the kneeling position 46; use the sitting position 6; use the prone position 80.

15. What kinds of grenades have you used in combat?

a. M34 WP smoke 58
b. M57, M59 impact 18
c. M26A1, M33 fragmentation 178
d. M18 colored smoke 172
e. AN/M8 white smoke 8
f. CS riot control 61
g. Incendiary (thermate) 26
h. MK3A2 offensive (concussion) 60

16. When throwing hand grenades, how often do you use the cook-off technique (pull pin, release the handle allowing the striker to fall, and throw)? Often 14; seldom 39; Never 135.

17. What ratio of 5.56mm tracer to ball ammunition do you use?
a. Daylight: _____tracer to _____ball
b. Night: _____tracer to _____ball
c. Both: _____tracer to _____ball

18. How effective has your rifle fire been?

a. DAYLIGHT:	EFFECTIVENESS		
Range (meters)	Hardly ever miss	About half and half	Hardly ever hit
0-50	144	34	4
50-150	91	102	6
150-250	31	154	18
beyond 250	15	105	71
b. NIGHT:			
Range (meters)			
0-10	156	34	4
10-25	107	64	5
25-50	43	102	20
50-75	23	79	55
beyond 75	14	45	102

19. Circle which rounds would be tracer in the order you place them into the magazine.

Day: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
Night: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

20. What weapons have you used during a combat operation?

a. M16A1 rifle 201
b. M79 grenade launcher 103
c. M60 machinegun 84
d. M72 (LAW) 58
e. .45 Cal pistol 22
f. Hand Grenades 155
g. Claymore mines 154

21. Have you used the starlight scope mounted on your M16A1 rifle? Yes 18 No ___
If yes, how effective has your fire been?

Range (meters)	EFFECTIVENESS		
	Hardly ever miss	About half and half	Hardly ever hit
0-50	14	3	1
50-100	7	10	0
100-150	4	8	1
150-200	3	6	4

Addendum 1: Analysis of Squad Leader and Platoon Sergeant Responses

Addendum 1
SUBJECT: Analysis of Squad Leader and Platoon Sergeant Questionnaires

1. Background:

a. Source. Information contained in this addendum is based on questionnaires completed by 52 squad leaders and 26 platoon sergeants. These non-commissioned officers were assigned to the same units as the 208 riflemen who completed questionnaires. A consolidation of the squad leaders and platoon sergeants responses are attached as inclosures 1 and 2.

b. Validity. Squad Leaders who supplied this data had served an average time of 7.6 months in country, and 90% (47) indicated their squads had been in firefights with enemy forces. The platoon sergeants average time in country was 10.6 months and 77% of the platoons had been in contact with enemy forces. It should be emphasized that all questions were not answered by each individual; therefore, consolidations of answers received cannot be mathematically balanced to obtain a total response of 52 or 26. An analysis of individual questionnaires reveals that some individuals tended to give book answers, but overall the responses tend to validate the data received from the riflemen.

c. MOS and Grade. All personnel have an assigned MOS of 11B40 with the exception of 2 individuals. One platoon sergeant has an MOS of 11H40 and one squad leader is an 11C40. The platoon sergeants consisted of four E5's, sixteen E6's and six E7's. The grade of squad leaders are two E4's, forty-four E5's, and six E6's.

2. Analysis:

a. Training Requirements (Question 1). These NCO's were asked the following question: "What in-country weapons training, other than battlesight zero, have your squad members had since their arrival in Vietnam?" Four riflemen from each squad and eight from each platoon were asked the same question. A comparison of the responses received are shown in Chart 1. In order to correlate answers from these three organization levels, squad leader responses have been multiplied by four and platoon sergeants by 8, which equals the number of rifleman questionnaires received from each of these levels of command. Based on these figures, it appears that the NCO responses certainly validate the data received from the riflemen.

WEAPON	RESPONSES		
	RIFLEMEN	SQUAD LEADER	PLAT SGT
M16A1 Rifle	180	196	184
M79 Grenade Launcher	144	164	184
M60 Machinegun	137	164	176
M72 (LAW)	121	154	160
.45 Caliber Pistol	50	40	88
Hand Grenades	144	156	184
Claymore Mines	156	184	192

Chart 1. In-country Weapons Training

b. Target Detection (Questions 11, 12 and 13). Multiple answers were received to these questions, therefore, all percentages are based on total responses rather than the number of squads and platoons which submitted questionnaires. Utilizing this system of analysis, 63% of the squad leader responses and 80% of the platoon sergeant responses indicate firefights are initiated by enemy fire. Chart 2 below reflects the various ranges at which firefights have been initiated.

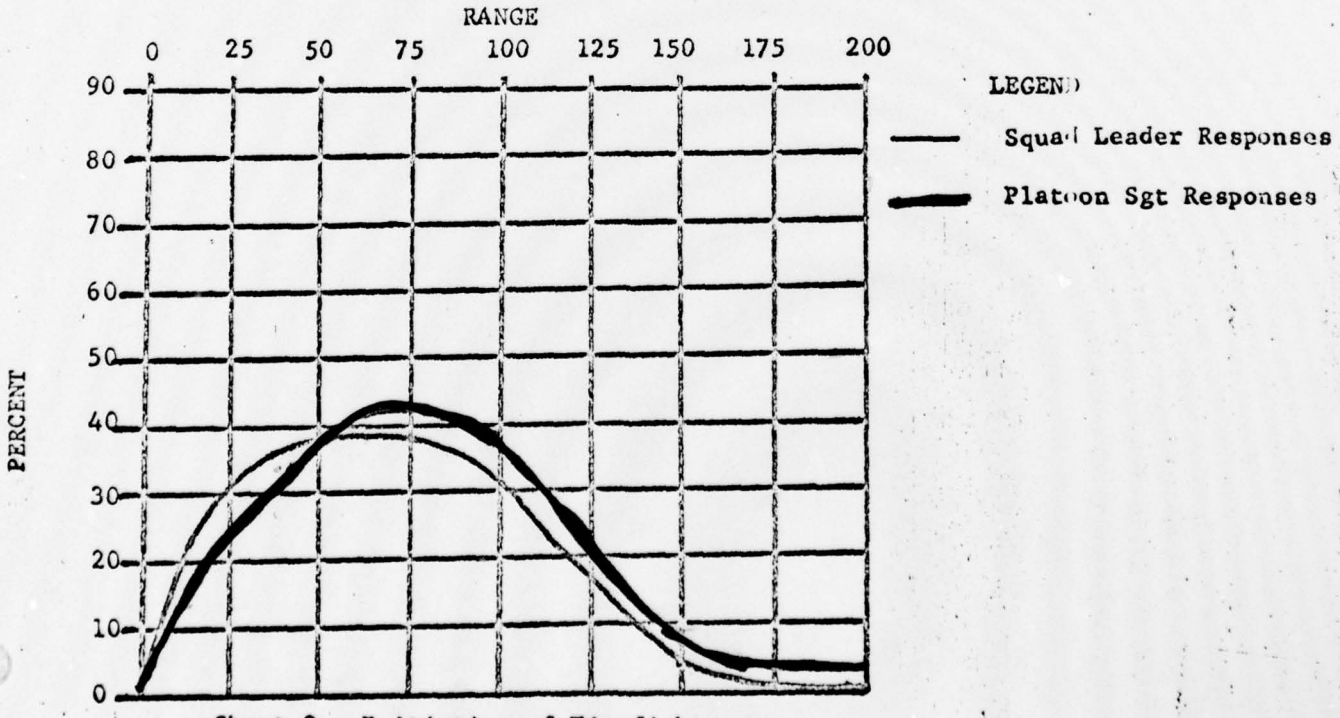


Chart 2. Initiation of Firefights

contact with enemy targets. The 26 platoon sergeants provided 42 responses to this portion of the questions; therefore, it is difficult to determine the number of platoons that utilize maximum application of automatic fire during initial contact. However, indications are that the majority of the rifle squads deliver a heavy volume of automatic fire upon initial contact then have the riflemen switch to the semiautomatic mode during the remainder of the firefight.

(3) These NCO's were also asked to specify the ranges at which their squad members could deliver effective automatic fire with the M16A1 rifle without utilizing the bipod. Only 1 individual of the 78 querried indicated effective automatic fire can be delivered beyond 250 meters. Five responses indicated effective fire between the ranges of 150 to 250 meters and 16 at ranges from 100 to 150 meters. Seventy-seven percent of the responses indicate this type fire is effective at ranges from 0 to 100 meters. The most effective range (0-25, 25-50 or 50-100) cannot be determined because multiple answers were received from individuals. However, this data can be correlated to the riflemen's response that the majority of them utilize automatic fire to engage targets from 0 to approximately 125 meters.

(4) Another consideration in analyzing the application of automatic fire with the M16A1 rifle is the employment of the rifle platoon M60 machineguns. In question 8 of the questionnaire, 68% of the squad leaders indicated an M60 machinegun was employed within their squad and utilized as an automatic rifle. Eighty-eight percent of the platoon sergeants also indicated that the M60 is employed in this role. The absence of the machinegun within the squad could increase the requirement for riflemen to fire in the automatic mode.

e. Target Engagement (Question 14 and 15)

(1) Mode of Fire: A comparison of the responses received from riflemen, squad leaders, and platoon sergeants pertaining to the mode of fire used by riflemen and automatic riflemen when under extreme time pressure is shown in charts 4 and 5 below. Since the riflemen questionnaires probably included responses from automatic riflemen, the percentages depicted in these charts are based on the total of the responses for riflemen and automatic riflemen. (Example: 14a(1) plus 14b(1) equals total responses). Using this method of analysis it would appear that the responses received from the riflemen has most certainly been validated by the NCO responses. If the responses pertaining to the automatic riflemen are eliminated from the analysis, the data shown by the dashed lines is obtained. Based on this information it appears that the NCO's, especially the squad leaders, do not realize how often squad members engage targets with automatic fire. If this situation does exist, here again is an indication of a lack of fire control.

It should be noted that the total of the responses for 0-25 meters and 25-50 meters is greater than those for 50-100 meters. (Question 1) The squad leaders indicated that 55.5% of the firefights are initiated between 0-50 meters whereas platoon sergeants indicated 46%. Only 5 of 92 responses indicated initiation of firefights beyond 100 meters. Responses to question 13 indicate that units are usually alerted to the presence of enemy forces mainly through observation and enemy fire, however, smell and sound are also utilized to detect enemy targets.

c. Hit Probability. These questionnaires did not contain a question which can be directly related to hit probability.

d. Automatic Fire. (Questions 4, 5, 6, 7 and 8)

(1) Question 5 of the NCO questionnaire is identical to question 7 of the rifleman questionnaire. Using the factors of 4 and 8, as in chart 1, a comparison of responses is shown in Chart 3.. It should be realized that the NCO answers probably include automatic riflemen. It would appear, from an overall analysis of responses, that the NCO's believe they are exercising more fire control than actually exists within the units. Note the difference in the responses for line 1 and 4 of chart 3.

Line No.	When Used	Rifle-men	Squad Ldr	Plat Sgt
1	On orders from leaders	72	100	136
2	To engage single personnel	46	40	32
3	To engage several personnel	118	92	96
4	Suspected enemy locations	92	40	48
5	To engage enemy bunkers	47	64	56
6	To engage automatic weapons	53	88	104
7	All the time	23	32	16
8	Hardly ever	39	32	24

Chart 3. Application of Automatic Fire

(2) An analysis of Question 4 (How many men in your squad(s) fire the M16A1 rifle in its automatic mode in a combat situation?) reveals that 53% of the squads have 4 or 5 riflemen firing automatic fire during initial

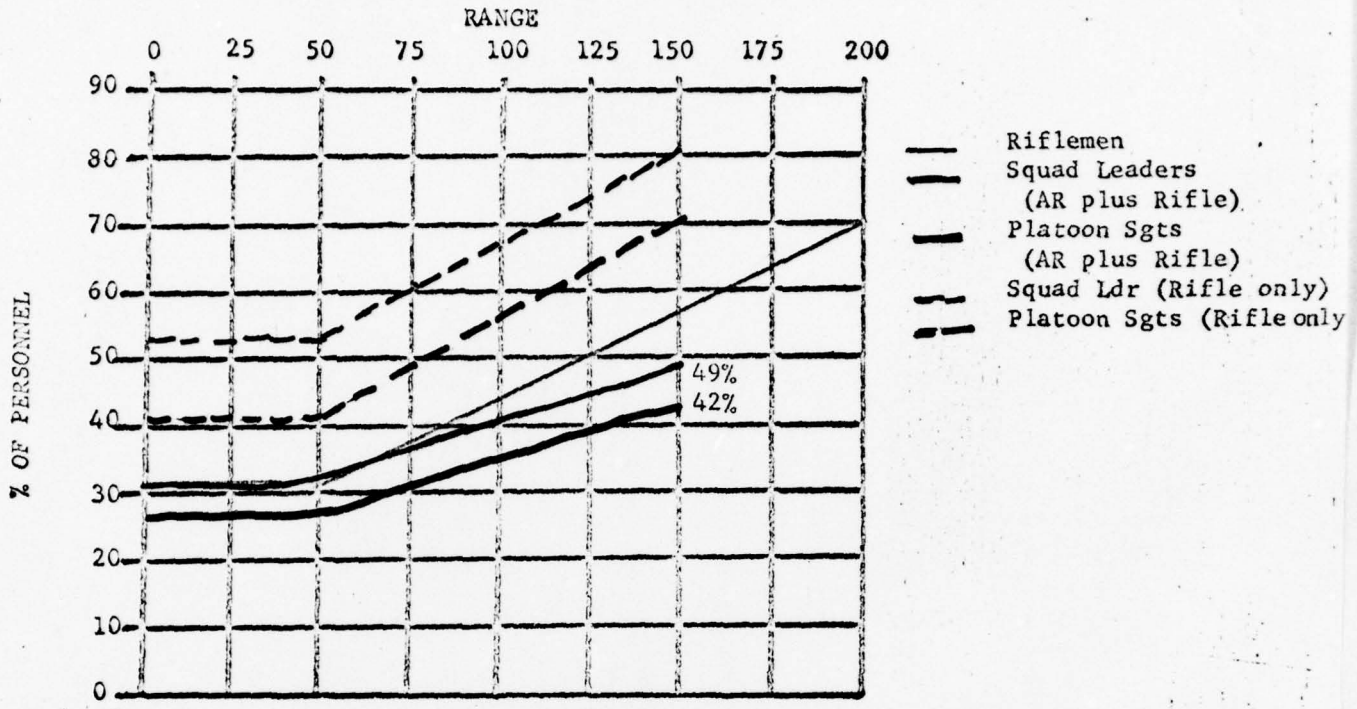


Chart 4. Use of Semiautomatic Fire Under Time Pressure

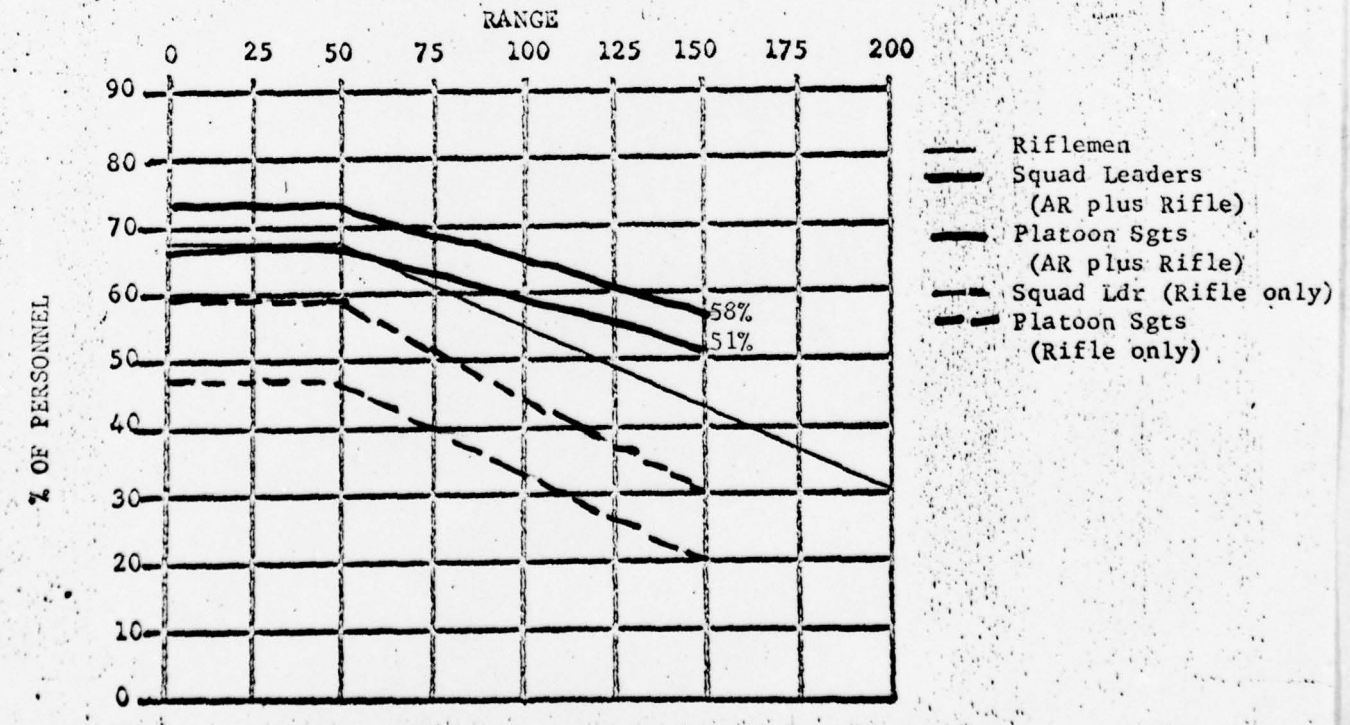


Chart 5. Use of Automatic Fire Under Time Pressure

(2) Sighting Techniques (Part a(2) of Questions 14 and 15).

The NCO's were given the following options to identify the sighting techniques used by their squad members when under extreme time pressure: carefully aimed, quick aimed, quick kill and underarm pointing technique. The riflemen were asked the same question in their questionnaire. Chart 6 below shows a comparison of responses received which indicated the number of riflemen and automatic riflemen who use the sights to engage targets at certain ranges.

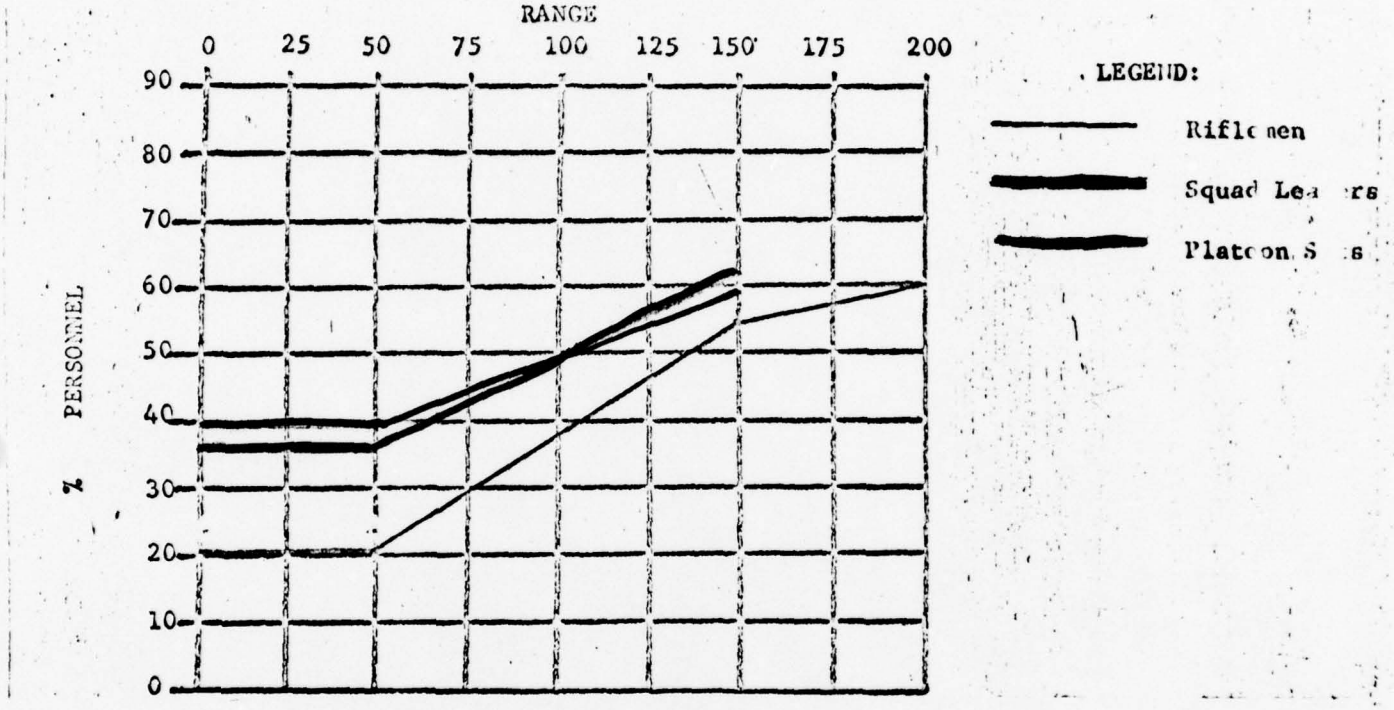


Chart 6: Percent of Personnel Using Sights When Under Time Pressure

Chart 7 depicts the number of personnel who utilize the pointing technique to engage targets at certain ranges. The NCO questionnaires indicate that the riflemen generally fire from the shoulder using quick aim or quick kill techniques whereas, the automatic riflemen tend to use quick kill or underarm pointing techniques. Charts 6 and 7 tend to verify the fact that a majority of the riflemen utilize the pointing technique to engage targets at ranges from 0 to approximately 100 meters.

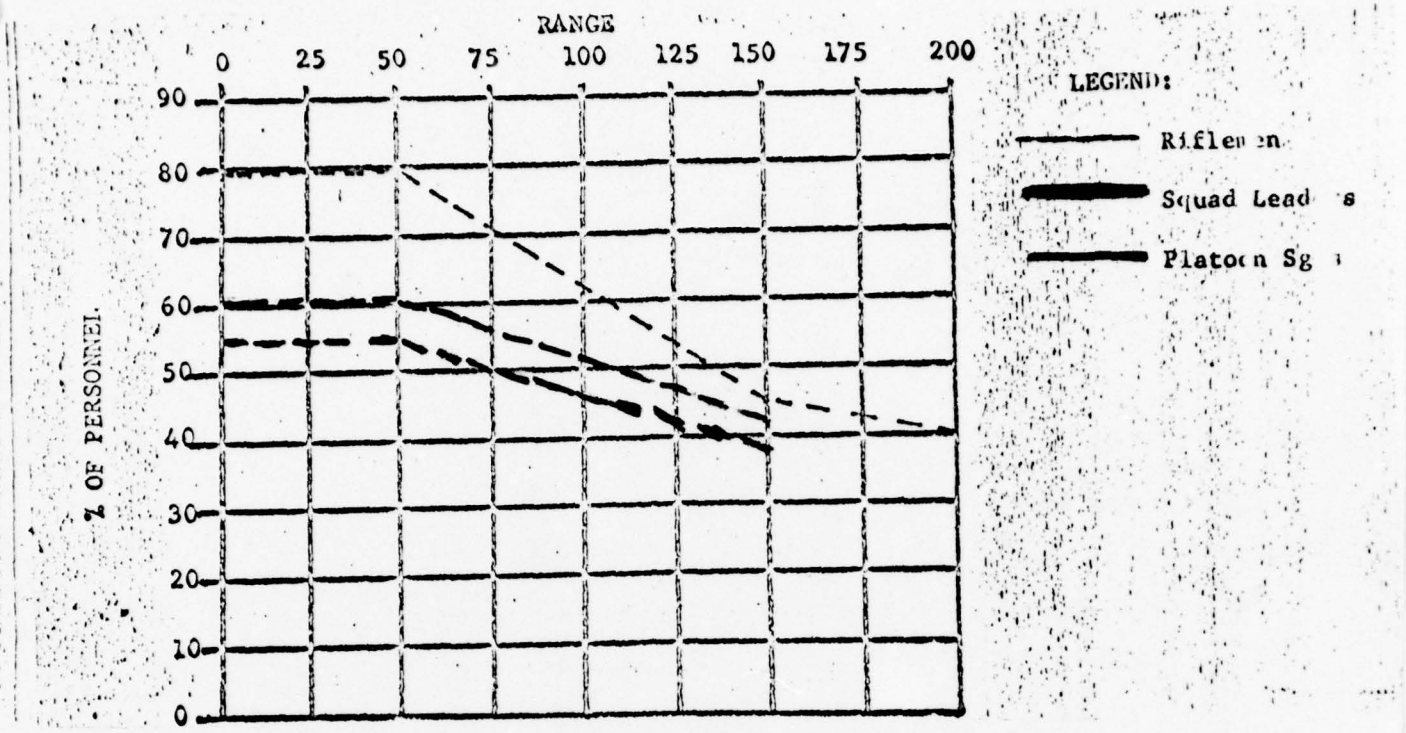


Chart 7: Percent of Personnel Using Pointing Techniques
When Under Time Pressure

(3) Technique of Fire:

(a) When engaging targets under extreme time pressure at ranges from 0-50 meters, 54% of the squad leaders indicated that the riflemen deliver area fire. Seventy-five per cent of the platoon sergeants indicated employment of area fire by the riflemen under these conditions. Insofar as the AR men, the NCO's indicated 6.5% fire at single targets, 40% fire at groups of personnel, and 53.5% employ area fire. The NCO responses confirm the fact that a minority of the personnel armed with the M16A1 Rifle attempt to engage single targets at close ranges, when under extreme time pressure.

(b) If the enemy target is at ranges from 50 to 150 meters and firing at the squad, 43% of the squad leaders indicated the riflemen use area type fire. Forty-eight percent of the platoon sergeants also indicate area fire is utilized. The automatic riflemen in approximately 16% of the squads fire at single targets, 33% at groups of personnel, and 50% employ area fire. Under these conditions the platoon sergeants indicated 22% of the automatic riflemen fire at single targets, 35% at groups of personnel and 42% employ area fire.

(c) If the data contained in subparagraphs a and b above is compared to the per cent of riflemen who use the pointing technique as shown in Chart 7 there appears to be a correlation between the two in that the per cent of squads which use the pointing technique is approximately the same as those that employ area fire at various ranges.

(4) Immediate Actions. Chart 8 below shows a comparison of responses received regarding the rifleman's reaction when he engages targets, seen or suspected, while under extreme time pressure or receiving enemy fire. The NCO questionnaires indicate the automatic riflemen react in the manner as riflemen. Approximately 4% of the squads and platoons indicated personnel armed with the M16A1 rifle wait for orders under these conditions before engaging enemy targets. Five percent of the riflemen indicated they waited for orders before firing. The remainder of the personnel and units react by shooting first and then taking cover.

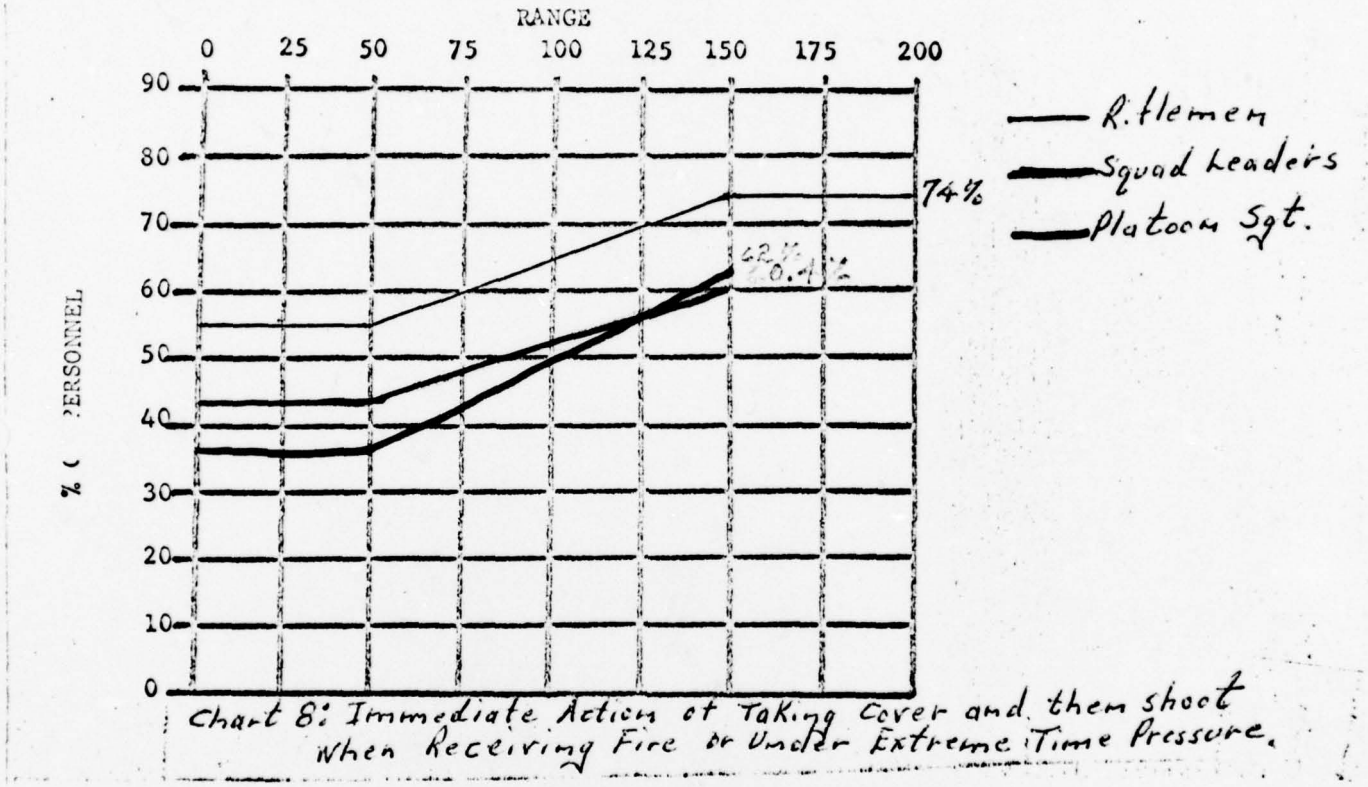


Chart 8: Immediate Action of Taking Cover and then shoot When Receiving Fire or Under Extreme Time Pressure.

(5) Firing Positions: These questionnaires confirm the fact that the sitting position is utilized by very few riflemen. Only 5 squad leaders indicated the firing position is used in their units.

g. Hand Grenades (Questions 17 and 18). The most commonly used hand grenades are the M33 fragmentation and M3A2 concussion. Only three squads utilized the M59 impact detonating grenade and six employed the phosphorous grenade. It appears the cook-off procedure is seldom used when throwing grenades, however, 11% of the rifle squads do employ the cook-off method.

3. Summary.

a. These questionnaires validate the following information received from the riflemen:

(1) Additional training with the M16A1 rifle, M79 grenade launcher, M60 machinegun, M72 LAW, hand grenades and Claymore mine is conducted incountry for rifle squad members. (see Chart 1).

(2) Multiple and area type targets, i.e., suspected enemy locations, induce the use of automatic fire. (See Chart 3).

(3) Automatic fire is utilized by a majority of the riflemen to engage targets out to a range of approximately 75 meters. (See Chart 5).

(4) Individuals tend to use the pointing technique of sighting when the automatic mode is fired. (See charts 5 and 7)

(5) Fire distribution techniques are not being properly utilized by the rifle squads (reference: para 2 e (3)).

(6) Initial engagement of enemy forces by fire is not controlled by a large majority of the NCO's.

(7) Only 40% to 60% of the riflemen apply Quick Kill techniques as taught in BCT and AIT, i.e., shoot first then take cover. (See Chart 8).

(8) The sitting position is seldom used by riflemen in RVN (reference para 2 e (5)).

(9) The cook-off procedure is seldom used when throwing hand grenades.

b. The following additional information was received through the NCO questionnaires:

(1) Fire fights are normally initiated at ranges from 0 to 100 meters with approximately 50% at ranges of 50 meters or less.

(2) The rifle squad delivers a heavy volume of automatic fire upon initial contact then has the riflemen switch to the semiautomatic mode.

(3) Automatic fire without the bipod is effective at ranges from 0 to 100 meters.

(4) A majority of the rifle platoons are attaching the M60 machineguns to the rifle squads where they are being employed in an automatic rifle mode.

QUESTIONNAIRE
SQUAD LEADER/[redacted]

This questionnaire is designed to assist the Weapons Department of the United States Army Infantry School, Fort Benning, Georgia, in accumulating raw data concerning critical combat skills, knowledges, and performances required of the Light Weapons Infantryman, MOS 11B10, which should, upon being compiled and tabulated, provide certain information which will be used to improve marksmanship training programs for the Light Infantry Weapons.

You have been selected by your Platoon Leader on the basis of your combat experience and knowledge to complete this questionnaire. Please answer each question and part of questions as completely as possible by checking the appropriate block or blocks as they apply and return the questionnaire to your Platoon Leader.

RANK E6-6 E5-44, E4-2, Present MOS _____, Length of Time in Vietnam 7.6 (Avg) (Months)
Squad _____, Platoon _____, Company _____,
Battalion _____, Brigade 17 Brigades, Division _____.

1. What in-country weapons training other than battlesight zero have your squad members had since their arrival in Vietnam?
   a. M16A1 rifle 49
   b. M79 grenade launcher 41
   c. M60 machinegun 41
   d. M72 (LAW) 38
   e. .45 caliber pistol 10
   f. hand grenades 39
   g. claymore mines 46

2. Has your squad/platoon been in a firefight with enemy forces? YES 47, NO 5.
   If yes, how many times? 332(+) Total

3. Within the past 2 months, how many enemy personnel has your squad/platoon killed, wounded or captured? 535(+) Total

4. How many men in your squad(s) fire the M16A1 rifle in its automatic mode in a combat situation?

	During Initial Contact	During the Remainder of the Firefight
No one	10	16
2 per squad	12	17
3 per squad	6	6
4 per squad	9	5
all riflemen	18	7
	41	

5. When do squad members fire the M16A1 rifle in its automatic mode?
   On orders from leaders 25
   When engaging a single enemy 10
   When engaging several enemy personnel 23
   When engaging suspected enemy locations 10
   When engaging enemy bunkers 16
   When engaging enemy automatic weapons 22
   All the time 8
   Hardly ever 8
   Initial Contact 1

6. At what ranges is the M16A1 automatic fire (without bipod) of your squad(s) members effective?
   0-25 meters 15
   25-50 meters 23
   50-100 meters 14
   100-150 meters 10
   150-250 meters 2
   beyond 250 meters 1

7. Do members of your squad(s) carry the bipod? Only tions? YES 5, NO 46. If yes, how many riflemen carry the bipod? Only designated AR men 3; all riflemen 2. If yes, when do they use the bipod and at what ranges?

all the time 1	from _____	to _____	meters
offense only 1	from _____	to _____	meters
defense only 2	from _____	to _____	meters
offense and defense 0	from _____	to _____	meters

8. Is an M60 machinegun employed within the rifle squad(s) in the automatic rifle role? YES 34; NO 16.

9. What ratio of 5.56mm tracer to ball ammunition is used by
   a. riflemen (day) _____ tracer to _____ ball.
      (night) _____ tracer to _____ ball.
   b. automatic riflemen (day) _____ tracer to _____ ball.
      (night) _____ tracer to _____ ball.

10. At what ranges have members of your squad(s) engaged the enemy using the starlight scope and hit the enemy?

Mounted on Weapons	Hand Held	
1	1	0-25 meters
1	1	25-50 meters
3	4	50-100 meters
0	2	100-200 meters
0	1	beyond 200 meters

11. At what distance from enemy personnel have firefights usually been initiated?

0-25 meters	14	100 to 200 meters	2
25-50 meters	24	beyond 200 meters	0
50-100 meters	26		

12. Firefights are usually initiated by enemy fire 34, friendly fire 20.

13. What usually alerts members of your squad(s) to the presence of the enemy?

Observe them	30	enemy fire	28
hear them	17	smell them	10

14. When engaging enemy targets, seen or suspected, at ranges from 0 to 50 meters and under extreme time pressure, what type fire do members of your squad(s) use?
   a. riflemen:
      (1) semiautomatic 27, automatic 24. (48)
      (2) carefully aimed 5; quick aimed 21; pointing type, not using the sights from the shoulder 23; other (specify) 1 (Underarm)
      (3) fire at single targets 22; fire at the area 26.
      (4) shoot first then take cover 26; take cover then shoot 21; wait for orders 2. (49)
   b. automatic riflemen:
      (1) semiautomatic 4; automatic 43.
      (2) carefully aimed 2; quick aimed using the sights 12; pointing type not using the sights from the shoulder 22; pointing type, underarm 15.
      (3) single rounds 2; 2-3 rd bursts 10; 3-5 rd bursts 29; 5-10 rd bursts 4; 20 rd burst hose effect 1.
      (4) fire at single targets 4; fire at groups of personnel 20; fire at the area 27.
      (5) shoot first then take cover 19; take cover then shoot 26; wait for orders 3 (48)

15. When engaging enemy targets, seen or suspected, at ranges from 50 to 150 meters while receiving enemy fire, what type fire do members of your squad(s) use?

a. riflemen:

(1) semiautomatic 39 ; automatic 10 . 75

76 (2) carefully aimed 19 ; quick aimed using the sights 16 ; pointing type, not using the sights, from the shoulder 14 ; pointing type underarm 2 .

(3) fire at single targets 28; fire at the area 21 .

(4) shoot first then take cover 17 ; take cover then shoot 29 ; wait for orders 2 . 48

(5) In the offense use the: standing position 13 ; kneeling position 6 ; sitting position 5 ; prone position 31 .

(6) In the defense use the: standing position 0 ; prone position 32; sitting position 0 ; kneeling position 1 ; a foxhole 17 .

b. automatic riflemen:

(1) semiautomatic 8 ; automatic 38 .

(2) carefully aimed 9 ; quick aimed using the sights 15 ; pointing type not using the sights, from the shoulder 17; pointing type from the hip 4 .

(3) single rounds 10; 2-3 rd bursts 11 ; 3-5 rd bursts 21 ; 5-10 rd bursts 4 ; 20 rd bursts hose effect 2 .

(4) fire at single targets 8 ; fire at groups of personnel 16 ; fire at the area 24 .

(5) shoot first then take cover 15 ; take cover then shoot 22 ; wait for orders 1 . 38

(6) In the offense use the: standing position 10; kneeling position 2 ; sitting position 4 ; prone position 28 .

(7) In the defense use the: standing position 0 ; kneeling position 0 ; sitting position 6 ; prone position 29 ; a foxhole 26 .

17. Which of the following hand grenades are used by your squad(s)?

M59 impact detonating 3 M34 white phosphorous 6

M33 baseball fragmentation 36 M3A2 offensive (concussion) 14

18. Do members of your squad(s) use the cookoff method when throwing hand grenades? YES 5 NO 40 .

If yes, how often? Often 3 ; seldom 7 .

If yes, in what situations? _____

_____

QUESTIONNAIRE
XQUESTIONNAIRE/PLATOON SERGEANT

This questionnaire is designed to assist the Weapons Department of the United States Army Infantry School, Fort Benning, Georgia, in accumulating raw data concerning critical combat skills, knowledges, and performances required of the Light Weapons Infantryman, MOS 11B10, which should, upon being compiled and tabulated, provide certain information which will be used to improve marksmanship training programs for the Light Infantry Weapons.

You have been selected by your Platoon Leader on the basis of your combat experience and knowledge to complete this questionnaire. Please answer each question and part of questions as completely as possible by checking the appropriate block or blocks as they apply and return the questionnaire to your Platoon Leader.

E-7 - 6 E-5 - 4
RANK E-6 -16, Present MOS _____, Length of Time in Vietnam 10.6 (Months)
Squad _____, Platoon _____, Company _____,
Battalion _____, Brigade _____, Division _____.

1. What in-country weapons training other than battlesight zero have your squad members had since their arrival in Vietnam?
   a. M16A1 rifle 23
   b. M79 grenade launcher 23
   c. M60 machinegun 22
   d. M72 (LAW) 20
   e. .45 caliber pistol 11
   f. hand grenades 23
   g. claymore mines 24

2. Has your squad/platoon been in a firefight with enemy forces? YES 20, NO 6.
   If yes, how many times? 133(+) total

3. Within the past 2 months, how many enemy personnel has your squad/platoon killed, wounded or captured? 206(+) total

4. How many men in your squad(s) fire the M16A1 rifle in its automatic mode in a combat situation?

	During Initial Contact		During the Remainder of the Firefight	
No one	2	34	5	
2 per squad	7		11	
3 per squad	2		2	
4 per squad	13		0	
all riflemen	18		4	

5. When do squad members fire the M16A1 rifle in its automatic mode?
   On orders from leaders 17
   When engaging a single enemy 4
   When engaging several enemy personnel 12
   When engaging suspected enemy locations 6
   When engaging enemy bunkers 7
   When engaging enemy automatic weapons 13
   All the time 2
   Hardly ever 3

6. At what ranges is the M16 automatic fire (without bipod) of your squad(s) members effective?

0-25 meters	6	100-150 meters	6
25-50 meters	9	150-250 meters	3
50-100 meters	9	beyond 250 meters	___

7. Do members of your squad(s) carry the bipods for the M16A1 rifle on operations? YES 6, NO 19. If yes, how many riflemen carry the bipod? Only designated AR men 4; all riflemen ___. If yes, when do they use the bipod and at what ranges?

all the time	2	from ___	to ___	meters
offense only	0	from ___	to ___	meters
defense only	6	from ___	to ___	meters
offense and defense	0	from ___	to ___	meters

8. Is an M60 machinegun employed within the rifle squad(s) in the automatic rifle role? YES 23, NO 3.

9. What ratio of 5.56mm tracer to ball ammunition is used by
   a. riflemen (day) ___ tracer to 1 ball.
      (night) ___ tracer to ___ ball.
   b. automatic riflemen (day) ___ tracer to ___ ball.
      (night) ___ tracer to ___ ball.

10. At what ranges have members of your squad(s) engaged the enemy using the starlight scope and hit the enemy?

Mounted on Weapons	Hand Held	
___	1	0-25 meters
1	2	25-50 meters
___	3	50-100 meters
___	1	100-200 meters
___	1	beyond 200 meters

11. At what distance from enemy personnel have firefights usually been initiated?

0-25 meters	4	100 to 200 meters	2
25-50 meters	8	beyond 200 meters	1
50-100 meters	11		

12. Firefights are usually initiated by enemy fire 20, friendly fire 5.

13. What usually alerts members of your squad(s) to the presence of the enemy?

Observe them	16	enemy fire	18
hear them	10	smell them	5

14. When engaging enemy targets, seen or suspected, at ranges from 0 to 50 meters and under extreme time pressure, what type fire do members of your squad(s) use?

a. riflemen:

(1) semiautomatic 11, automatic 16. (22)

(2) carefully aimed 1; quick aimed 14; pointing type, not using the sights from the shoulder 10; other (specify) ___.

(3) fire at single targets 6; fire at the area 18.

(4) shoot first then take cover 16; take cover then shoot 10; wait for orders 1. 27

b. automatic riflemen:

(1) semiautomatic 3; automatic 23.

(2) carefully aimed 1; quick aimed using the sights 4; pointing type not using the sights from the shoulder 9; pointing type, under arm 12.

(3) single rounds 1; 2-3 rd bursts 6; 3-5 rd bursts 19; 5-10 rd bursts 2; 20 rd burst hose effect ___.

(4) fire at single targets 1; fire at groups of personnel 11; fire at the area 14.

(5) shoot first then take cover 16; take cover then shoot 8; wait for orders 2. 26

15. When engaging enemy targets, seen or suspected, at ranges from 50 to 150 meters while receiving enemy fire, what type fire do members of your squad(s) use?

a. riflemen:

(1) semiautomatic 19; automatic 8. (22)

(2) carefully aimed 9; quick aimed using the sights 10; pointing type, not using the sights, from the shoulder 5; pointing type under-arm 5.

(3) fire at single targets 14; fire at the area 13.

(4) shoot first then take cover 10; take cover then shoot 18; wait for orders 1. 27

(5) In the offense use the: standing position 8; kneeling position 11; sitting position 1; prone position 14.

(6) In the defense use the: standing position ___; prone position 15; sitting position ___; kneeling position 2; a foxhole 15.

b. automatic riflemen:

(1) semiautomatic 3; automatic 22.

(2) carefully aimed 5; quick aimed using the sights 9; pointing type not using the sights, from the shoulder 8; pointing type from the hip 5.

(3) single rounds 2; 2-3 rd bursts 5; 3-5 rd bursts 15; 5-10 rd bursts 2; 20 rd bursts hose effect ___.

(4) fire at single targets 7; fire at groups of personnel 11; fire at the area 13.

(5) shoot first then take cover 10; take cover then shoot 17; wait for orders 2. 29

(6) In the offense use the: standing position 8; kneeling position 8; sitting position ___; prone position 14.

(7) In the defense use the: standing position ___; kneeling position 2; sitting position ___; prone position 14; a foxhole 17.

17. Which of the following hand grenades are used by your squad(s)?
M59 impact detonating 3 M34 white phosphorous 8
M33 baseball fragmentation 17 M3A2 offensive (concussion) 6

18. Do members of your squad(s) use the cookoff method when throwing hand grenades? YES 7 NO 21.
If yes, how often? Often 2; seldom 4.
If yes, in what situations? _____

Addendum 2: Analysis of Platoon Leader and Company Commander Responses

Addendum 2.
SUBJECT: Analysis of Platoon Leader and Company Commander Questionnaires

1. Background:

a. Source: These questionnaires were completed by 20 company commanders and 22 platoon leaders assigned to 7 different divisions and the 173d Airborne Brigade.

b. Experience. (Questions 1, 2, 3, and 4) Over 85% of these officers have participated in Cordon and Search, night ambush, and reconnaissance in force operations. Seventy-eight percent have experience in airmobile operations; 59% in night short range patrols, 35¢ in mechanized operations and 19% in riverine operations. The units commanded by these officers have had 379(+) firefights with enemy forces. The company commanders indicated the firefights their units have had resulted in 1,031 enemy KIA and 139 enemy captured, whereas the platoon leaders indicated 446 enemy KIA and 80 captured. It should be recognized that these casualties probably include those inflicted by supporting fires and unit fires. The average time these officers have been assigned to their respective units is 3.8 months and the average time in-country is 7½ months.

2. Analysis:

a. Training requirements (Questions 5 and 7). The responses received from this portion of the questionnaire indicate that over 75% of the infantry units in RVN conduct in-country weapons training on the M16A1 rifle, M60 machinegun, M72 LAW and hand grenades. The M79 grenade launcher was inadvertently omitted from this questionnaire. Of significant importance is the fact that 95% of the units conduct additional training on the Claymore mine. Only 34% of the units conduct .45 caliber pistol training. Chart 1 below depicts the percent of officers who recommend additional marksmanship training in the specified areas:

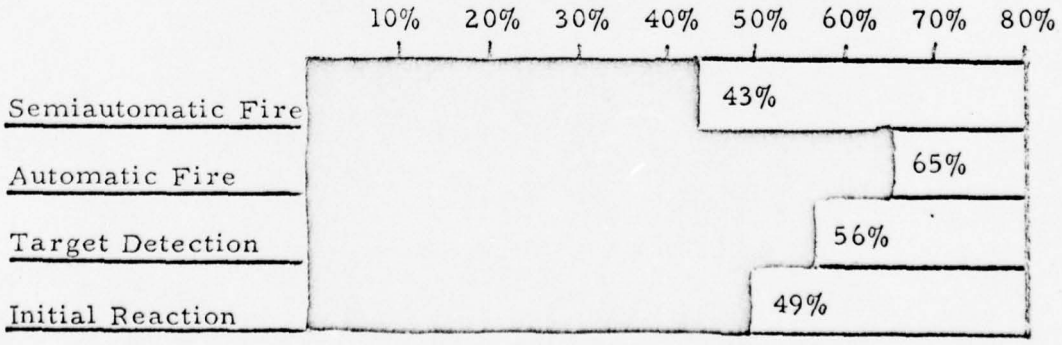


Chart #1. Additional Marksmanship Training Requirements

b. Target Detection (Questions 8, 9, and 10): Multiple answers were received to these questions; therefore, all percentages are based on total responses rather than the number of platoon leaders and company commanders which completed questionnaires. Utilizing this system of analysis 72% indicated firefights are usually initiated by enemy fire. Units are usually alerted to the presence of the enemy by seeing them or receiving fire. Twenty-five percent of these officers indicated their units have detected targets by sound and 9% by smell. Chart 2 below reflects an interpolation of the various ranges at which firefights are usually initiated.

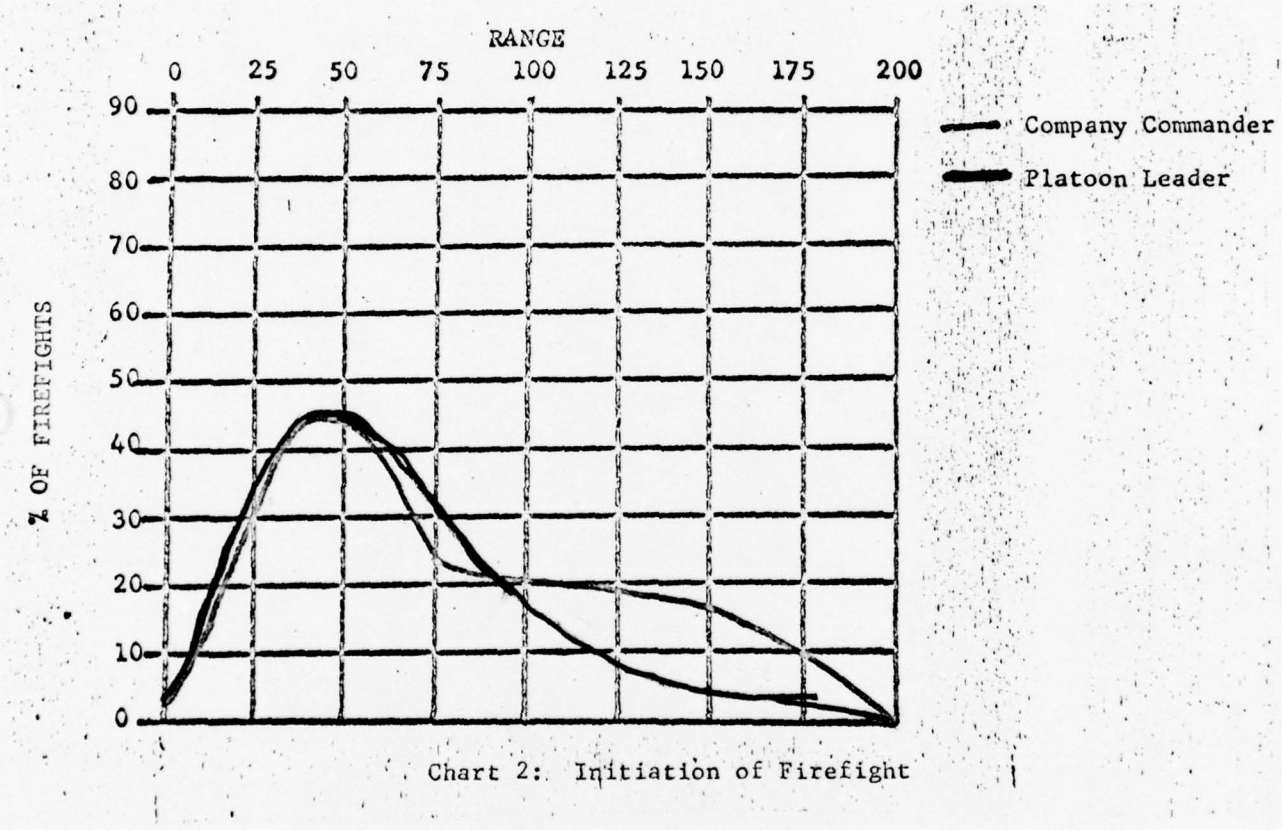


Chart 2: Initiation of Firefight

c. Automatic Fire (Questions 11 and 12):

(1) Eighty-three percent of the officers querried indicated their units have an SOP regarding the automatic setting on the M16A1 rifle.

Based on the responses received from 35 officers, Chart 3 below indicates who within the unit controls the use of the automatic setting. (Two or more individuals were specified in some units).

INDIVIDUAL	% OF UNITS
Riflemen	28.5
Team Leader	17
Squad Leader	48.5
Platoon Leader	42.8

Chart 3: Control of Automatic Setting

(2) Insofar as immediate action SOP, 62% of the units direct maximum firepower in the direction from which fire was received. Approximately 43% of the units have selected personnel deliver maximum firepower upon initial contact.

d. Assault Techniques. Twenty-three individuals (54%) indicated their units most frequently used fire and movement to attack an enemy position; 45% use fire and maneuver. Only four officers indicated they frequently use the assault line attack.

3. SUMMARY:

a. These questionnaires validate the following information received from riflemen, squad leaders and platoon sergeants:

(1) A majority of the units conduct additional incountry weapons training with the M16A1 rifle, M60 machinegun, claymore mine, hand grenades and M72 LAW. (Reference para 2a)

(2) Firefights are normally initiated at ranges from 0 to 100 meters; the majority of which occur at ranges of 50 meters or less. (See Chart 2)

(3) A majority of the units have developed SOP's which require all or a majority of the riflemen to deliver maximum firepower on the target upon initial contact. (Reference para 2c(2))

b. The following additional information was received through these officer questionnaires:

(1) A majority of the officers recommend additional marksmanship training in delivery of automatic fire and target detection. Over 40%, but less than 50%, recommend additional training in delivery of semiautomatic fire and initial reaction to enemy fire. (See Chart 1)

(2) The fire team leader is not utilized to control automatic fire in 83% of the platoon and company size units. (See Chart 3)

(3) Assault line attacks are seldom used in attacks on enemy positions. Fire and movement or fire and maneuver are utilized to close with enemy forces.

QUESTIONNAIRE
PLATOON LEADER/COMPANY COMMANDER

This questionnaire is designed to assist the Weapons Department of the United States Army Infantry School, Fort Benning, Georgia, in accumulating raw data concerning critical combat skills, knowledges, and performances required primarily of the Light Weapons Infantryman MOS 11B10; Indirect Fire Crewman, MOS 11C10; and Direct Fire Crewman, MOS 11H10; which should, upon being compiled and tabulated, provide certain information which will be used to improve marksmanship and weaponry training programs.

Please answer each question and parts of questions as completely as possible by checking the appropriate block or blocks as they apply and return the questionnaire through command channels for return to the Infantry School.

The questionnaires furnished to members of your command are for the same purpose. Your assistance and cooperation is deeply appreciated.

CPT-18 Co Comdr - 20
RANK 1LT-23; 2LT-1, Duty Assignment Plat Ldr - 22, Unit _____,
(Platoon/Co, Bn, Bde/Div) 1st Inf, 5th,4th,9th,25th,101st Americal Divisions and 173d Bde.

1. How long have you been in your present assignment? 3.8 avg (Months).

2. How many months (total) have you been in Vietnam? 7.5 avg

3. What types of operations has your unit been on since you have been assigned to it? (Frequency)

Airmobile 33	Night Short Range Patrol 25
Mechanized 15	Night Ambush 38
Riverine 8	Long Rnage Patrol 9
Cordon and Search 36	Reconnaissance in force 39

4. How many firefights with the enemy has your unit had since you have been assigned to it? 379 How many enemy KIA have resulted from such contact? 1856 How many enemy WIA? - How many enemy captured? ____

5. What in-country weapons training other than battlesight zero have personnel assigned to your unit had?

M16A1 Rifle 36	.45 Caliber Pistol 14
M60 Machinegun 33	Hand Grenades 31
M18A1 Claymore AP Mine 39	M72 LAW 31

6. When your unit conducts an attack on an enemy position, which assault technique do you use most frequently?
fire and movement 23 fire and maneuver 19 assault line attack 4

7. In what areas do your men need additional training?

delivering accurate semiautomatic fire 18
delivering accurate automatic fire 27
detecting the enemy 23
initial reaction to enemy fire 20

8. At what distance from the enemy are firefights usually initiated?
0-25 meters 8
25-50 meters 21
50-100 meters 13
100-200 meters 6
beyond 200 meters 2

9. Firefights are usually initiated by: enemy fire 31, friendly fire 12.

10. What usually alerts members of your unit to the presence of the enemy?
See them 24; hear them 10; enemy fire 2; smell them 4

11. Does your unit have an SOP regarding use of the automatic setting on the M16A1 rifle? Yes 35, No 7

If yes, who controls the use of the setting:
the rifleman himself 10
the rifleman's team leader 6
rifle squad leaders 17
rifle platoon leaders 15

12. Does the SOP include initial reaction to enemy initiated contact?
Yes 37 No 4 If yes, what initial reaction is prescribed?

a. All personnel direct maximum firepower in the direction from which fire was received 26.
b. Selected personnel direct maximum firepower in the direction from which fire was received 18.
c. Selected personnel engage observed targets only 1.

Addendum 3: Analysis of Battalion and Brigade Commanders Responses

Addendum 3.

1. Background:

a. Source. These questionnaires were completed by 6 Brigade Commanders, 16 Battalion Commanders, 1 Brigade Staff Officer, 6 Battalion Staff Officers and 1 unknown source from the following units:

1st Cav Division
- 2/7 Battalion
- 3d Brigade

1st Inf Division
- 2/7 Battalion
- 1/28 Battalion
- 1/16 Battalion
- 3d Brigade

4th Inf Division
- 1/22 Battalion
- 2/8 Battalion
- 2d Brigade
- 2/22 Bn Staff Off

5th Mech Division
- 1/11 Bn Staff Off

9th Inf Division
- 2/60 Battalion
- 3 Bde Staff Off
- 4/47 Bn Staff Off
- 3/60 Bn Staff Off
- 5/60 Bn Staff Off

25th Inf Division
- 1/35 Battalion
- 1/27 Bn Staff Off

82d Airborne Division
- 2/505 Battalion
- 1/508 Battalion
- 3d Brigade

101st Airborne Division
- 1/501 Battalion
- 1/502 Battalion
- 2d Brigade

173d Airborne Brigade
- 1/50 Battalion

Americal Division
- 4/31 Battalion
- 2/1 Battalion
- 1/52 Battalion
- 196th Inf Bde

b. Experience. These officers had served an average of 4.4 months in their assignment when these questionnaires were completed.

2. Analysis:

a. Additional Training Requirements in BCT (Question 1). These officers were asked if they had found men in other than Infantry MOS's with sufficient knowledge of weapons to participate in combat operations and to defend themselves and their installation. Eight individuals (26.6%) indicated they had not. Comments made in response to this question are as follows:

(1) All should train on M60 and M79. (3d Bde, 1st Cav)

(2) Greater emphasis is needed on fire discipline, control of fires, grazing versus plunging fires, and keeping fires close to the ground. (2d Bn, 7th Cav, 1st Cav Div (Air))

(3) All should train on M60 and M79. Emphasis needed on fire, discipline, firing aimed semi-automatic fire, firing low, waiting for targets to close to short range before engaging, if possible. (3d Bde, 1st Cav Div (AIR)).

(4) Soldiers are well trained - need only experience. Because of nature of warfare here in Vietnam, emphasis must be placed on effective firing at night. Soldier needs to be able to evaluate his own capability somehow. (3d Bde, 82d Abn Div)

(5) All personnel should receive orientation training with all the weapons currently employed by Infantry units prior to arriving into the Vietnam theater regardless of MOS, as few areas are "safe". (S-3, 3d Bde, 9th Inf Div)

(6) Qualification with basic weapon; familiarization with .50 caliber machinegun; familiarization with .50 caliber machinegun. (S-3, 5th Bn, 60th Inf, 9th Inf Div)

(7) In my initial assignment in Vietnam as a battalion executive officer and responsible for bunker defense of the battalion rear area, it was found that those personnel assigned to bunker duty in MOS's other than the 11 series had very little knowledge of weapons marksmanship. Personnel utilized were MOS 94, 76, 71, 63, and 91, and had to receive additional training in both care and cleaning, night firing techniques, and zeroing. I feel that all MOS's found within the Infantry battalion should receive additional training in the area mentioned above to include qualification.

(8) Subsequent to a serious incident, wherein, while undergoing in-country combat training, a replacement released the safety lever of an M26 hand grenade but held the grenade resulting in the death of 3 US and 4 wounded US, it was determined the replacement was a member of a QM, Engr supply unit. Over 30% of the unit had never thrown a live hand grenade. (2d Bn, 16th Inf)

(9) M79, M60 machinegun and Claymore mines require additional emphasis. (1st Bn, 11th Inf, Bn S-3)

(10) Additional training is needed in rifle marksmanship, with emphasis on semiautomatic fire at 150-250 meters for both 11B and 11C MOS personnel. (no organization given)

(11) MOS 11H - personnel, as a rule are generally unfamiliar with the .50 caliber HMG and the M72 LAW. Detailed instruction and training should be given on both weapons. (2d Bde, 101st Abn Div)

(12) Personnel in other than Infantry MOS's need additional training in care and cleaning, night firing techniques, zeroing, and basic marksmanship. This applicable in the general MOS field of 94, 76, 71, and 63. All MOS's found in the Infantry Battalion should receive additional training in marksmanship with emphasis on weapons qualification. (196th Light Inf Bde).

(13) All troops, combat or service should receive familiarization on M79, M60 MG, 90mm RR. (1st Inf Div, 3d Bde)

(14) I will give you my overall impressions based on my trips and inspection visits thus far. All non-infantry MOS's should receive mechanical training and familiarization firing on the M79 grenade launcher, M60 machinegun, and M72 LAW. These weapons are used by all personnel in base defense. Take Long Binh Post for example, much of the 31 clicks of the perimeter is manned by administrative and technical service people, many of whom had never seen these weapons until they arrived in Vietnam. They literally use these weapons, particularly recently since the enemy has been hitting logistical bases, air bases, and headquarters complexes. Some people feel that they should also be taught the Claymore mine. Our clerks and other administrative types occupy this perimeter nightly. We recently trained 937, M60 machine gunners on a crash basis in a three day period, to include firing the weapons from bunkers on an actual perimeter. A few months ago we had a rash of hand grenade accidents at our own replacement training centers. Recent comments from my training people indicate that many trainees arriving in country have never thrown a live hand grenade, or at the most, one. The feeling here is that more grenade throwing with live grenades is necessary. (COL Read, ACofS, G3, USARV)

b. In-Country Weapons Training (Question 2). Chart 1 below indicates the percent of Infantry Battalions which conduct in-country weapons training.

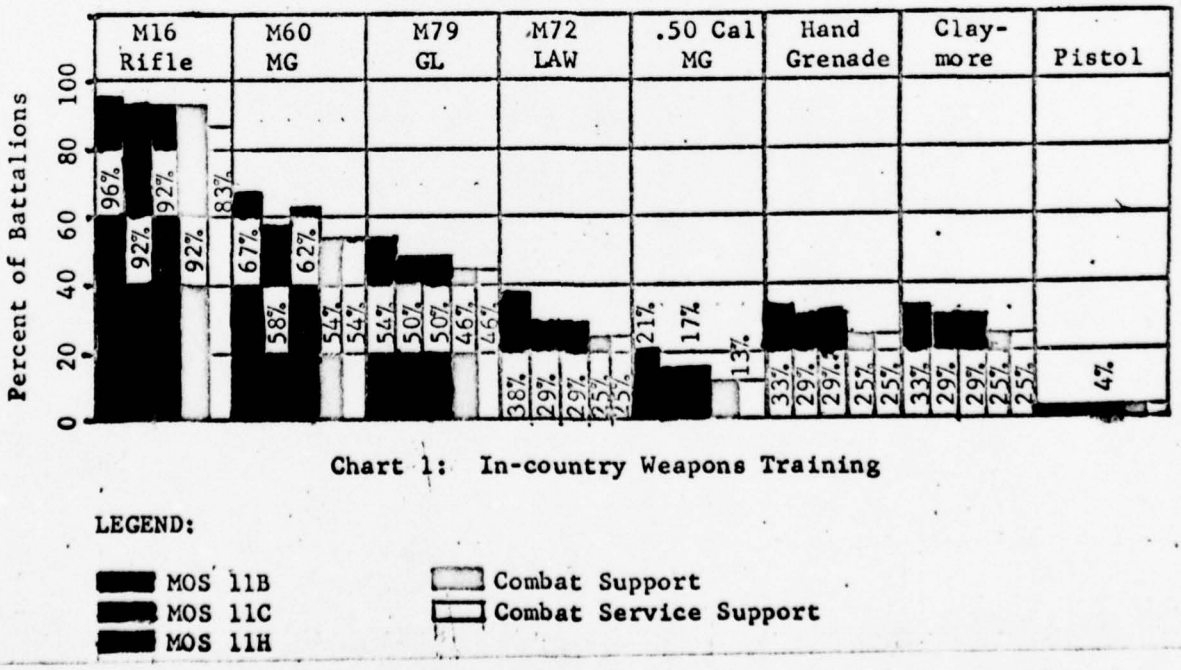


Chart 1: In-country Weapons Training

LEGEND:

- MOS 11B
- MOS 11C
- MOS 11H
- Combat Support
- Combat Service Support

The following additional weapons training is also conducted:

	WEAPON	NO. BATTALIONS	MOS's
(1)	AK 47	Two	All
(2)	SKS	One	All
(3)	90mm Recoilless Rifle	One Three	All 11H
(4)	106mm Recoilless Rifle	Three	11H
(5)	81mm Mortar	Seven	11C
(6)	4.2 Inch Mortar	Seven	11C

c. Basic Rifle Marksmanship (Question 3a and b).

(1) A brief description of the current M16A1 qualification course was provided to these commanders and staff officers and they were asked if this level of proficiency was necessary for non-infantry MOS personnel. Twenty-eight responses (93%) indicated that the 36% hit probability described was necessary. Two individuals indicated a 50% hit probability in BCT was necessary. As a follow up in this area, the question was changed to read: "Is such a level of proficiency adequate for non-infantry MOS personnel?" This question was answered by 138 advanced course students and 27.5% responded that it was not adequate. These individuals recommended that the hit probability be raised to 50%.

(2) Eighty percent of the officers indicated that emphasis in BCT should be placed on engaging targets at ranges from 50-150 meters. Twenty percent indicated ranges from 150 to 250 meters and 10% indicated 250 to 350 meters. (Multiple answers were received). Ranges from 0 to 50 meters were not included in the questionnaire.

d. AIT Rifle Marksmanship Levels of Proficiency (Question 3 c). Chart 2 on the following page reflects an average of all responses received regarding the hit probability AIT graduates should obtain at various ranges.

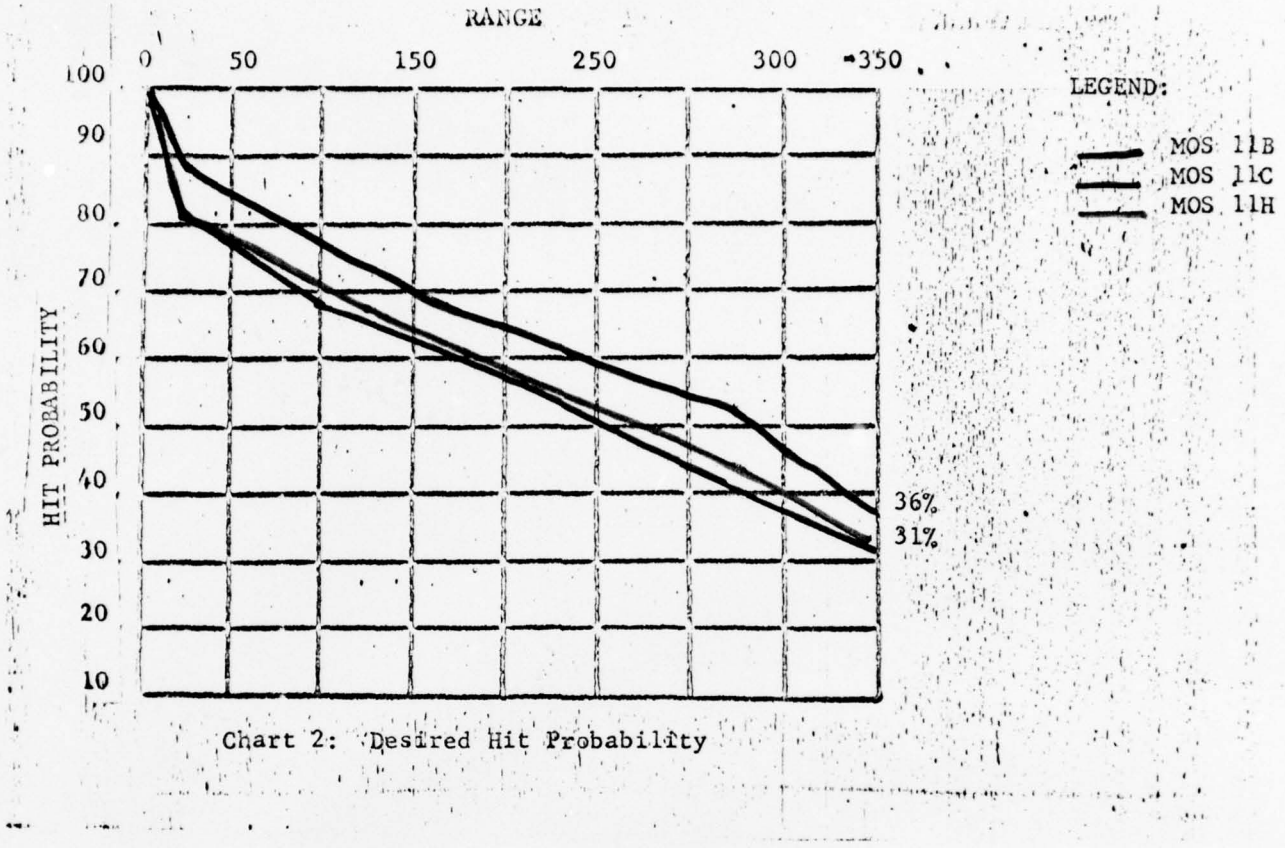


Chart 2: Desired Hit Probability

e. Application of Automatic and Semiautomatic Fire (Question 3d)

(1) Offense. Personnel were ask what ranges should be emphasized during Advanced Rifle Marksmanship during AIT for MOS 11B. The question addressed both automatic and semiautomatic fire. Chart 3 reflects the percent of individuals which recommended training emphasis at various ranges.

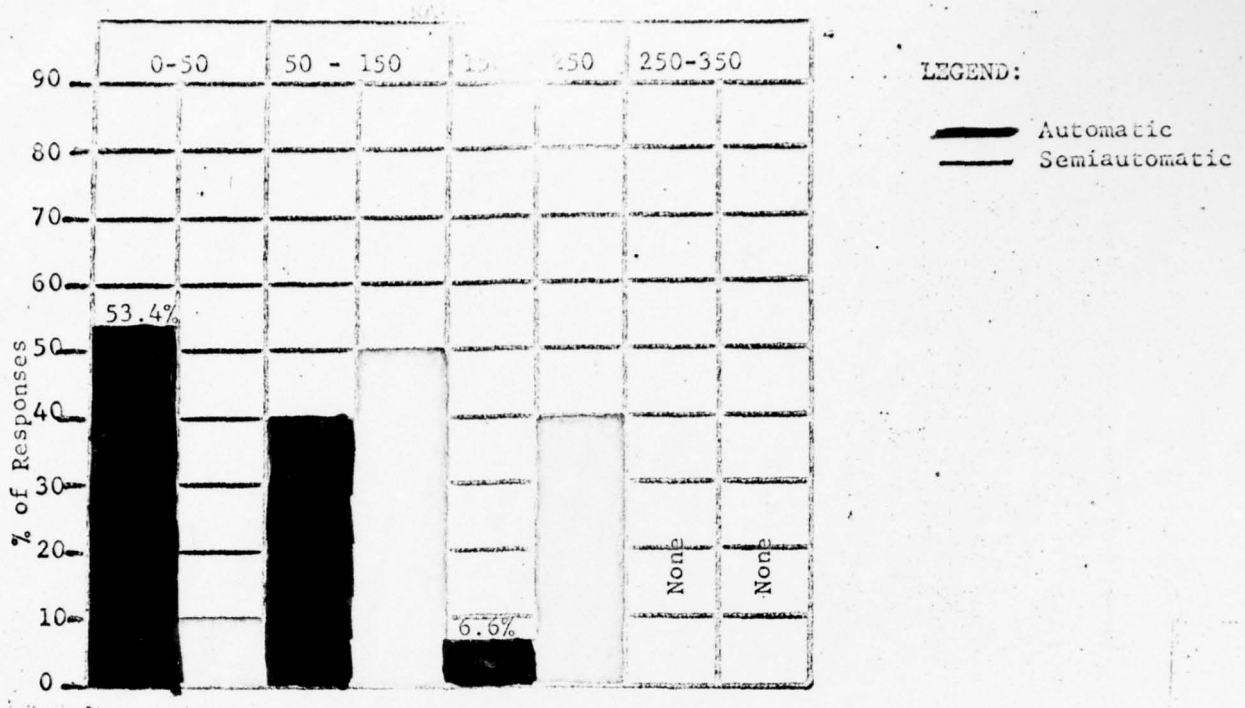


Chart 3: Recommendations for Emphasis in Offensive Firing

(2) Defense. Chart 4 below reflects recommendations for emphasis in defensive type training.

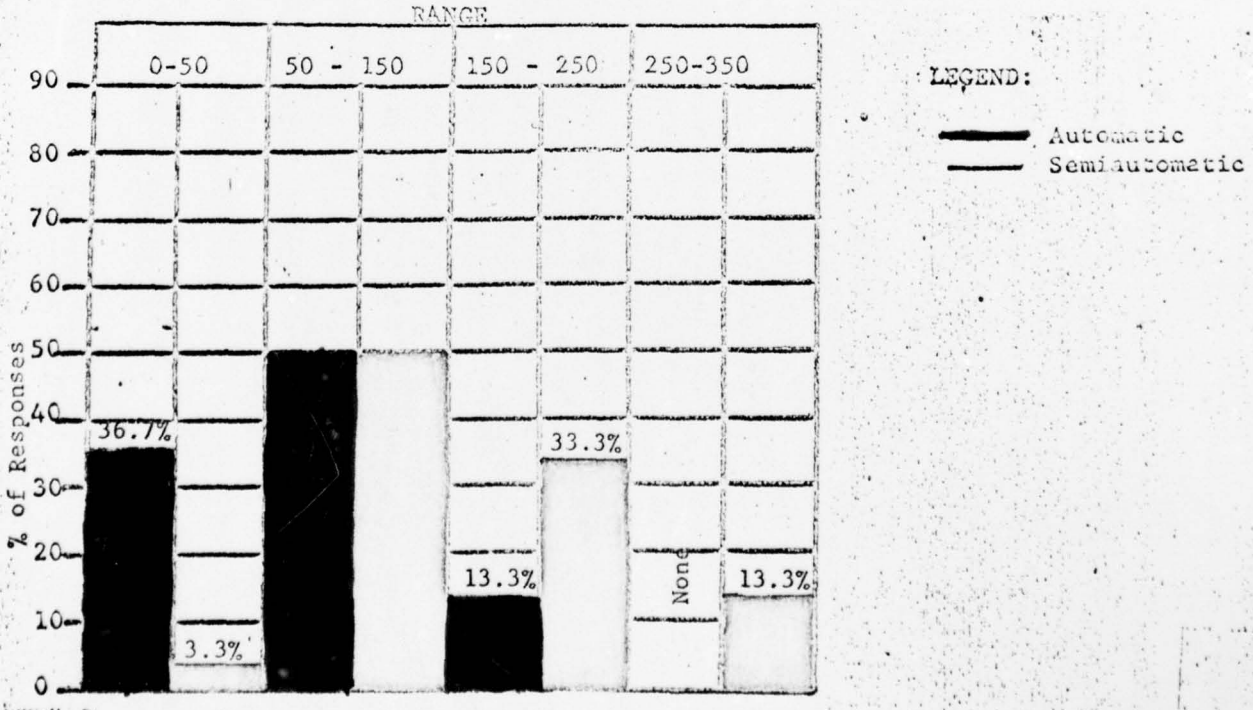


Chart 4: Recommendations for Emphasis in the Defensive Firing

f. MOS Skills and Knowledges (Question 4). In answering this question pertaining to what MOS skills and knowledges need to be strengthened in infantry AIT the following responses were received:

(1) MOS 11B10:

SUBJECT	NO OF RESPONSES
Marksmanship	3
Claymore	3
Battledrill	3
Mines and Boobytraps	3
Fire Control	4
Fire and Maneuver	4
Night Firing	3
Tech of Fire	1
Weapons Safety	1
Cross Train in Weapons	1

(2) MOS 11C10:

SUBJECT	NO OF RESPONSES
FDC	4
FO	2
Night Firing	4
Marksmanship M16	1
Mortar Ammo	2
Integrated Fire Plan	1
M60	2
Mortar Training	3
Battledrill	4
Claymore	1
M79	1
Fire Discipline	1
Cross Training Weapons	1

(3) MOS 11H10:

SUBJECT	NO OF RESPONSES
FO Procedures	2
Night Firing	3
M16	1
M60	1
M79	1
Claymore	1
Battledrill	2
Mine Sweep	1
106 RR Mobile Reaction	1
Fire Discipline	1
Weapons Cross Training	1

g. Hand Grenades (Question 5). The most commonly used grenades in these units are the baseball fragmentation (M33) and white phosphorous (M34) grenades. Approximately 50% of the units issue concussion grenades to troops while only 10% of the units issue M59 impact detonating grenades.

3. Summary.

a. Seventy-three percent of these officers stated that non-infantry personnel had a sufficient knowledge of weapons to perform their duties in infantry battalions and brigades. Eighty percent of them recommended that emphasis should be placed on engaging targets from 50 to 150 meters in BCT. (Reference paragraph 2d and 2c(2))

b. It appears that almost all the infantry units in RVN conduct in-country weapons training for all MOS's. (See Chart 1)

c. Marksmanship skills required of infantry MOS's 11B, 11C and 11H are much higher than those required of the non-infantry BCT graduates. A 70% hit probability is required out to a range of 150 meters. There appears to be a requirement to engage targets out to 350 meters with approximately a 50% hit probability. The marksmanship requirements for MOS's 11C and 11H are practically the same and the hit probability is from 6% to 12% less than that required of the riflemen. (See Chart 2)

d. Application of automatic fire should be emphasized in training for engagement of close-in targets. Little or no emphasis should be placed on engagement of targets beyond 150 meters using the automatic mode. The most emphasis should be placed on target engagement using automatic fire at ranges out to 50 meters in offensive type firing exercises but in defensive firing emphasis should be at ranges from 50-150 meters. There appears to be little emphasis on semiautomatic fire at ranges from 0-50 meters and equal emphasis on both modes from 50-150 meters (See Charts 3 and 4).

e. Based on the number of responses received there appears to be no critical MOS skills and knowledges that are not being adequately taught during BCT and Infantry AIT (Reference paragraph 2f).

f. Very few units issue the M59 impact detonating hand grenade to their troops.

QUESTIONNAIRE
BRIGADE/BATTALION

JOB TITLE: Bde CO (6); Bn CO (16); Bde Staff (1); Bn Staff (6); Unk Bn (1)
ORGANIZATION:
TIME IN CURRENT ASSIGNMENT (Months): 4.4 (Avg)

1. All personnel entering the Army currently receive 88 hours of weapons training while undergoing Basic Combat Training (BCT). These 88 hours of weapons training consists of 83 hours Basic Rifle Marksmanship and 5 hours hand grenade training. Infantry MOS's 11B, 11C and 11H receive further weapons training on the Infantry Battalion Weapons within their specialty. Other MOS's (non-infantry) receive little or no further weapons training beyond the 88 hours in BCT. Have you found that your men in other than Infantry MOS's have sufficient knowledge of weapons to participate in combat operations and to defend themselves and their installation? YES 22 NO 8

If not, what additional weapons training is required by MOS area and should such additional training consist of familiarization or qualification?

Comments are listed in paragraph 2a of Addendum 3.

2. What weapons training, if any, is conducted in-country for replacements with the following MOS's:

a. 11B10: M16A1 (29); M60 (18); M79 (16); Claymore (9); M72 (11); .50 cal (5); Hand Grenades (8); AK47 (2); SKS (1); 90RR (1); .45 cal (1).

b. 11C10: M16A1 (26); M60 (15); M79 (13); Claymore (8); M72 (8); .50 cal (4); .45 Cal (1); Hand Grenade (7); AK47 (2); SKS (1); 81mm (7); 4.2-in (7); 90RR (1).

c. 11H10: M16A1 (26); M60 (16); M79 (13); Claymore (8); M72 (8); .50 cal (4); Hand Grenade (7); AK47 (2); SKS (1); 106RR (3); 90RR (4); .45 cal (1).

d. Combat Support (skill level 10 and 20): M16A1 (27); M60 (14); M79 (13); Claymore (6); Grenades (6); M72 (7); .50 cal (3); AK47 (2); SKS (1); 90RR (1); .45 cal (1).

e. Combat Service Support (skill level 10 and 20): M16A1 (25); M60 (14); M79 (13); Claymore (6); Grenades (6); M72 (7); .50 cal (3); AK47 (2); SKS (1); 90RR (1); .45 cal (1).

3. Current M16A1 qualification in BCT is based on a record fire course wherein the soldier engages pop-up "E" and "F" type silhouette targets at each 50 meter increment between 50 and 350 meters. Target densities vary from 1 to 3 targets at a time with exposure times varying from 5 to 25 seconds depending on range to the targets and the number of targets exposed. To achieve qualification, the soldier must successfully engage 30 of 84 targets exposed.

a. Is such a level of proficiency necessary for non-infantry MOS personnel? YES 28, NO 2. If not, how many targets should such personnel be required to hit? 50%

b. In BCT, emphasis should be placed on target engagement at which of the following ranges?

50-150 meters	24	250-350 meters	3
150-250 meters	6	beyond 350 meters	0

c. During Infantry AIT 11B's receive 28 hours of Advanced Rifle Marksmanship, 11H's 8 hours of Advanced Rifle Marksmanship, and 11C's no additional training. With this training in mind what percentage of targets at various ranges should trainees of each MOS be able to hit upon completion of AIT.

11B	11C	11H	
89 %	82 %	82 %	0-50 meters
77 %	69 %	70 %	50-150 meters
65 %	57 %	58 %	150-250 meters
52 %	40 %	44 %	250-350 meters
37 %	31 %	31 %	beyond 350 meters

d. Based on your answers to the above questions, what range for target engagement should be emphasized for the rifleman 11B.

Offense:

Automatic fire: (check one)	0-50 meters	16	250-350 meters 0
	50-150 meters	12	beyond 350 meters 0
	150-250 meters	2	
Semiautomatic fire: (check one)	0-50 meters	3	250-350 meters 0
	50-150 meters	15	beyond 350 meters 0
	150-250 meters	12	

Defense:

Automatic fire: (check one)	0-50 meters	11	250-350 meters 0
	50-150 meters	15	beyond 350 meters 0
	150-250 meters	4	
Semiautomatic fire: (check one)	0-50 meters	1	250-350 meters 4
	50-150 meters	15	beyond 350 meters 0
	150-250 meters	10	

4. What MOS skills and knowledges need to be strengthened or added to the 11B10, 11C10 and 11H10 training programs?

a. 11B10: Marksmanship (3); Claymore (3); Battledrill (3); Mines and Booby-traps (3); Fire Control (4); Fire and Maneuver (4); Night Firing (3); Tech of Fire (1); Weapons Safety (1); Cross Train in Weapons (1).

b. 11C10: FDC (4); FO (2); Night Firing (4); Marksmanship M16 (1); Mortar Ammo (2); Integrated Fire Plan (1); M60 (2); Mortar Tng (3); Battledrill (4); Claymore (1); M79 (1); Fire Discipline (1): Cross Tng in Weapons (1).

c. 11H10: FO Procedures (2); Night Firing (3); M16 (1); M60 (1); M79 (1); Claymore (1); Battledrill (2); Mine Sweep (1); 106RR Mobile Reaction (1); Fire Discipline (1); Weapons Cross Tng (1).

5. Which of the following hand grenades are issued to your troops?
M59 impact detonating 3 M34 white phosphorous 17
M33 "baseball" fragmentation 27 M3A2 offensive (concussion) 14

6. The FLASH (flame launcher, assault shoulder or hip fired) consists of 4 M72 LAW tubes mounted together that fires a point detonating incendiary projectile. Tubes can be fired singly or in groups of 2, 3 or 4. Is the FLASH used in your unit? YES ____ NO ____. If yes, answer the following questions?

a. What type targets have been engaged? _____

_____

b. How effective were the rounds? _____

c. Do you prefer a single or multi-round capability? Single____, Multiple-round_____.

7. Is the antipersonnel round for the 90mm (XM590E1 flapper) or 106mm (XM581 beehive) recoilless rifle being utilized? YES _____ NO _____. If yes, what are the results? (Check one of the following):
Excellent _____ Satisfactory_____ Unsatisfactory _____
WHY?_____

_____

8. Are direct fire crewman (MOS 11H) being utilized as recoilless rifle crewman? YES _____ NO _____, Sometimes _____. If not, how are they utilized?_____

_____

9. Do you employ the Claymore mine in an uncontrolled role? YES____ NO____
If yes, how are they used (minefields, boobytraps, etc.) _____

_____

Is detonation cord used when priming uncontrolled Claymores to improve kill zone? YES _____ NO _____

Addendum 4: Analysis of Career Course Student Responses

Addendum 4.
SUBJECT: Infantry Officers Advanced Course Questionnaire

1. Background:

a. Source: These questionnaires were answered by 125 Captains and 17 Majors attending the Infantry Officers Advanced Course. Of these officers, 121 had command time while serving in the Republic of Vietnam as Rifle Company Commanders, 16 held staff positions at Battalion, Brigade and/or Division level and 5 were advisors to Vietnamese units.

b. Validity: The 142 officers that completed the questionnaire indicated they had been in a total of 2,701 fire fights with enemy units of various sizes resulting in 26,812 enemy killed in action, 1501 enemy wounded in action and 1,853 enemy captured.

2. Analysis:

a. Basic Rifle Marksmanship (Question 3):

(1) Question #3 briefly outlined the BCT requirements regarding rifle/marksmanship qualification and querried if the present established standards are adequate for non infantry MOS personnel. 71% of the individuals indicated that such a proficiency level is adequate while 27% indicated inadequate proficiency. Those indicating that the established proficiency level for BCT marksmanship qualification was inadequate preferred that the present level be raised to 50% vice 35%.

(2) Sixty-nine percent of the officers indicated that emphasis in BCT should be placed on engaging targets at ranges from 0 to 50 meters. Eighty-four percent recommended 50-150 meters, 50% 150 to 250 meters and 23% beyond 250 meters.

(3) The desired hit probability at various ranges is shown in Chart 1 below. This graph represents an average of all responses received.

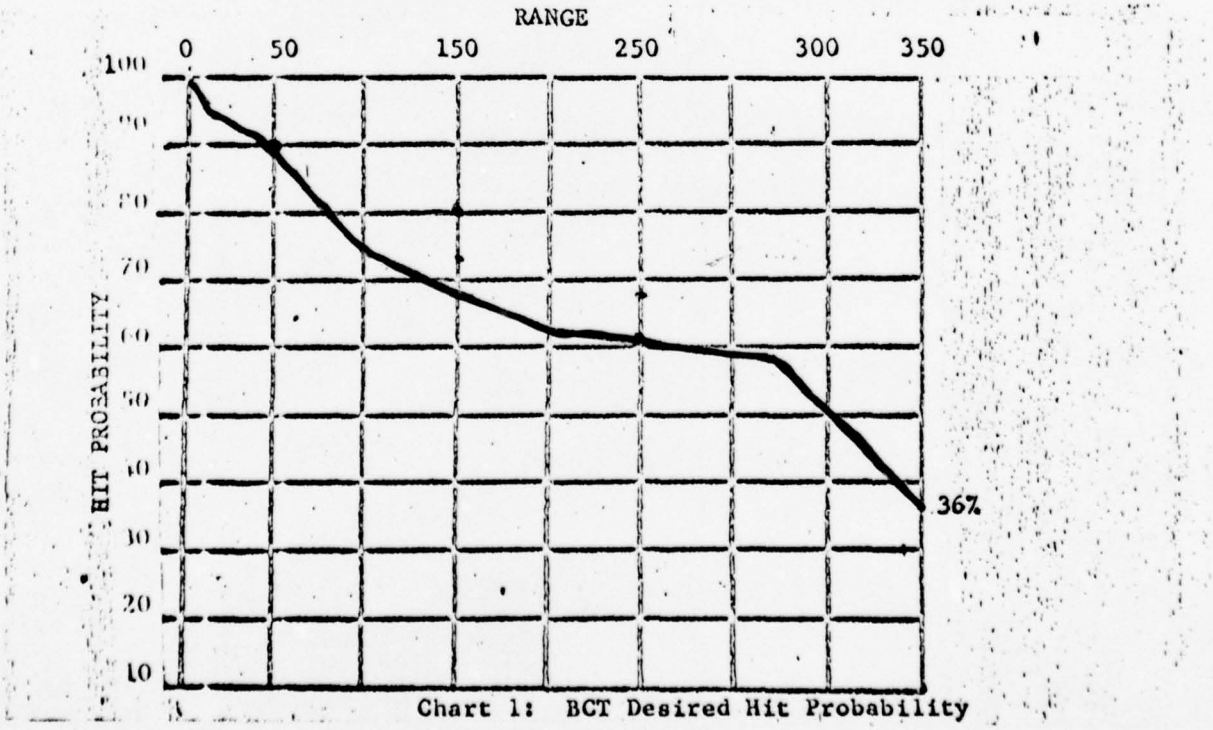


Chart 1: BCT Desired Hit Probability

b. AIT Rifle Marksmanship Levels of Proficiency (Question 4a).

Question #4 outlined Advanced Individual training hours devoted to rifle marksmanship and questioned the officers on the desired proficiency level of the trainee upon completion of AIT. Chart #2 depicts the desired levels for MOS 11B, 11C, and 11H's. An examination of Chart #2 reveals that the proficiency levels are quite similar in all respects to BCT proficiency levels except a slightly higher proficiency level to be achieved by 11B's at greater ranges. Additionally the hit drop off rate as a function of range decreases less rapidly for the three Infantry MOS's than indicated for BCT.

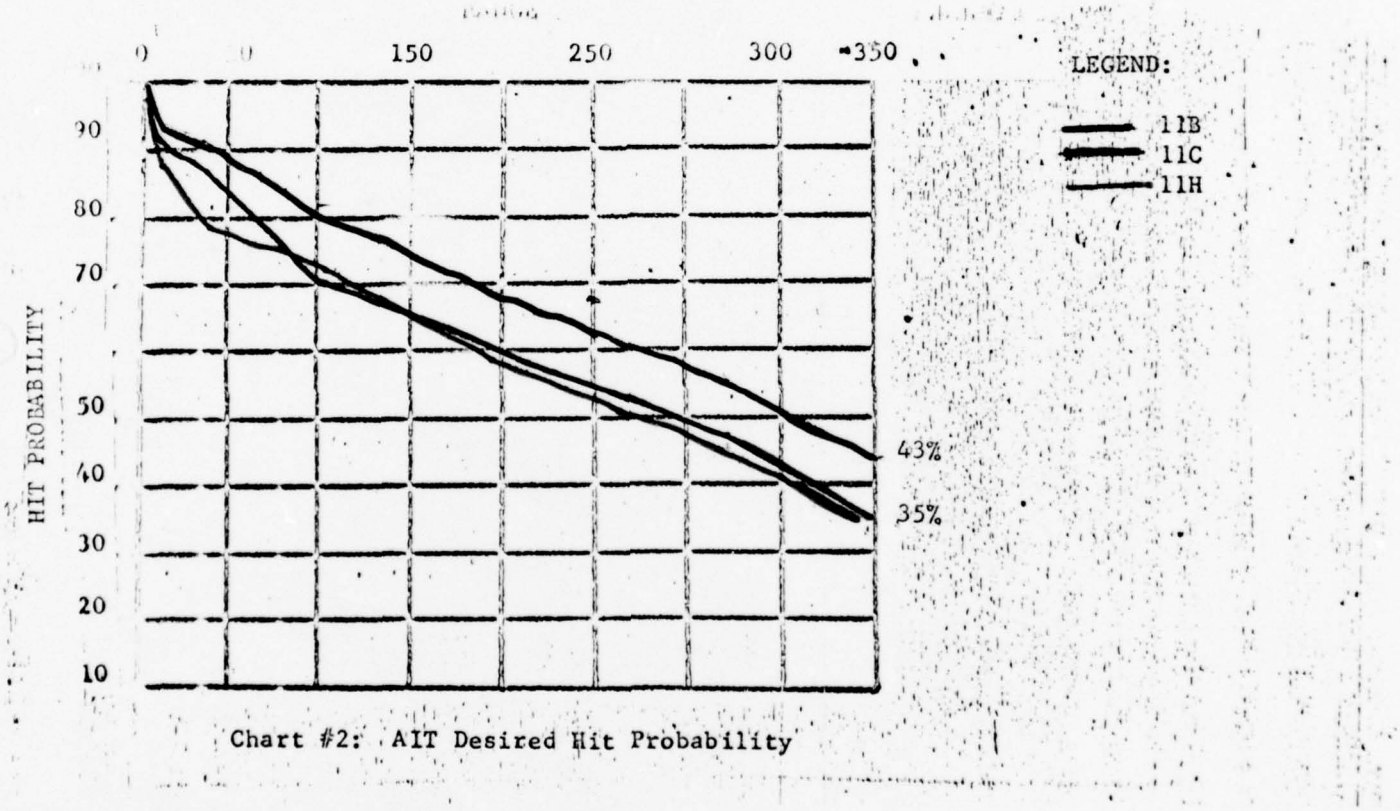
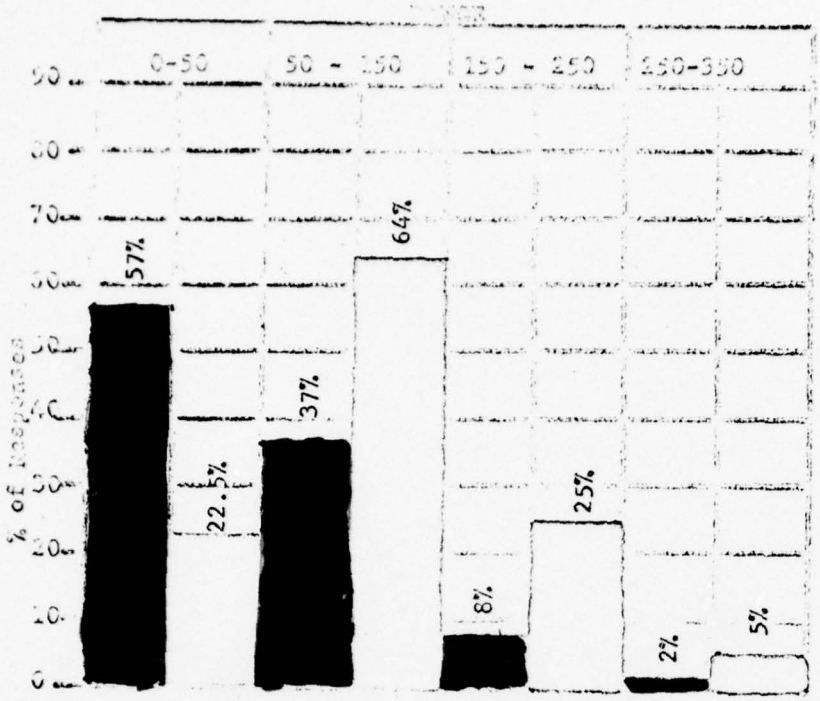


Chart #2: AIT Desired Hit Probability

c. Application of Automatic and Semiautomatic Fire (Question 4b).

(1) Offense: Based upon the answers provided to questions 3 and 4a the Advanced Course students were requested to indicate the ranges that training emphasis should be placed upon for MOS 11B AIT training during the application of offensive and defensive fires. Chart #3 reflects the percent of which recommended training emphasis on both modes of fire at various ranges.

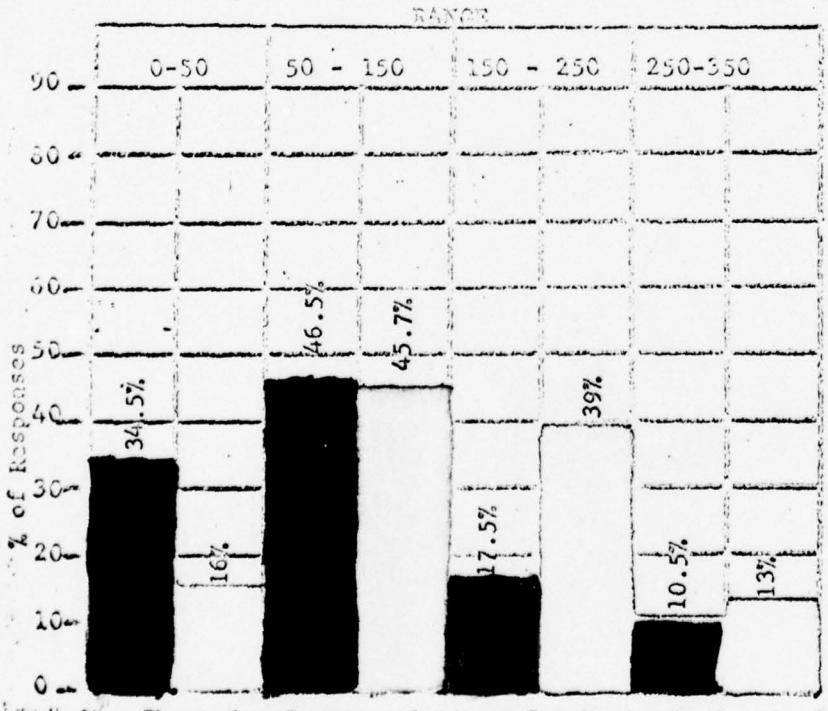


LEGEND:

Automatic
Semiautomatic

Chart 3: Recommendations for Emphasis in Offensive Firing

(2) Defense. Chart 4 below reflects recommendations for emphasis in defensive type training.



LEGEND:

Automatic
Semiautomatic

Chart 4: Recommendations for Emphasis in the Defensive Firing

(3) A comparison of both charts 3 and 4 reveals a high need for close-in automatic fire (0-50 meters) where the requirement for semiautomatic fire commences beyond 50 meters out to approximately 250 meters, little emphasis is required beyond 250 meters, for either mode, in either the offense or defense.

d. Additional training (Questions 6 and 8):

(1) When questioned about in-country weapons training, other than battlesight zero, that members of their units received within RVN; of the 142 officers completing the questionnaire, 112 indicated additional rifle training, 87 additional M60 machinegun training, 121 additional M18A1 Claymore AP Mine Training, 30 additional .45 caliber pistol training, 91 additional hand grenade training, and 108 additional M72 LAW training, although the questionnaire did not require indications as when this in-country weapons training was conducted, nor why.

(2) Chart 5 depicts the percent of officers who recommended additional marksmanship in the specified areas:

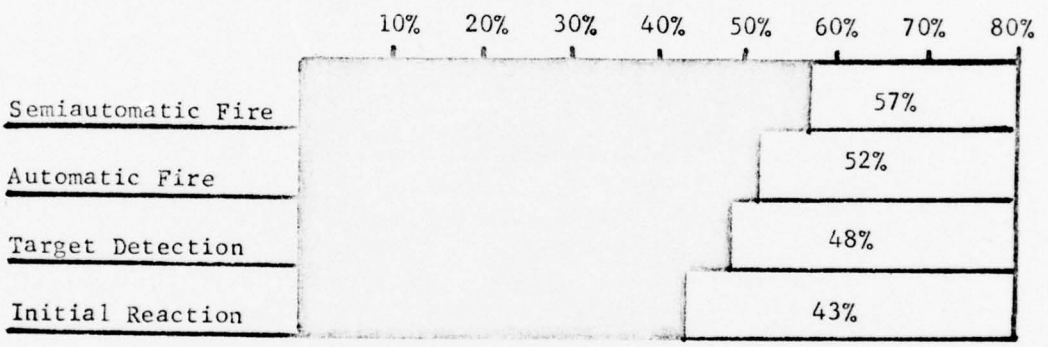


Chart #5. Additional Marksmanship Training Requirements

e. Initiation of Firefights. Questions 9, 10, and 11 directly requested information pertinent to the initiation of firefights with the enemy. Of the 142 officers completing the questionnaire 84% indicated that firefights usually are initiated by enemy fire and only 20% indicated initiation by friendly fire. Multiple responses as to what usually alerts unit personnel to the presence of the enemy indicate 80% enemy fire, 49% sightings, 19% hear the enemy (unidentified persons) before any other indication, and as high as 14% of the usual indications were by smell.

Responses to distances involved in initial contact indicate 88% frequency within 100 meters and only 12% of the occurences beyond 100 meters. Chart 6 reflects an interpolation of the various ranges at which firefights are usually initiated.

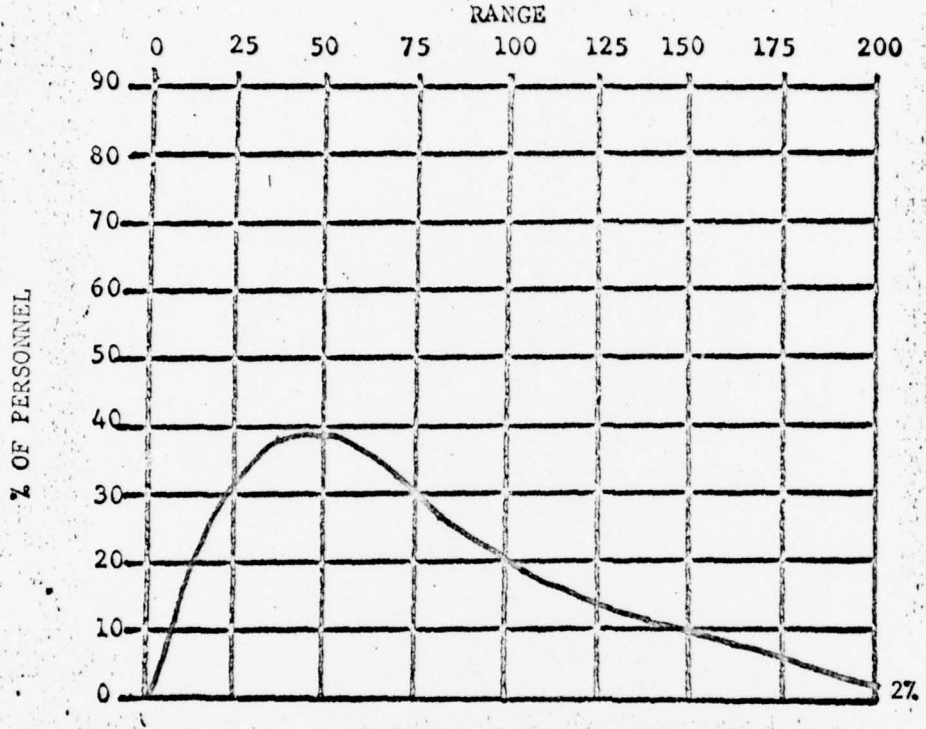


Chart 6: Initiation of Firefights

f. Initial Reaction SOP's (Questions 12, 13):

(1) Seventy-three percent of the officers indicated that their unit had an SOP governing the use of the automatic setting on the M16A1 rifle and the employment of automatic fire. Based on the responses received from 104 officers, Chart 7 below indicates who within the unit controls the use of the automatic setting. (Two or more individuals were specified in some questionnaires).

INDIVIDUAL	% OF RESPONSES
Riflemen	33.6
Team Leader	8.6
Squad Leader	37.5
Platoon Leaders	29.8
Company Commanders	1.9

Chart 7: Control of Automatic Setting

(2) Insofar as immediate action, 116 officers (82%) indicated their unit SOP's contained initial reaction procedures for enemy initiated contact. Fifty-two percent of these SOP's required all personnel to direct maximum firepower in the direction from which fire was received. Approximately 40% of the units have selected personnel fire automatic fire and 8% have selected personnel engage observed targets only. The desire for high volumes of fire to counter enemy initiated firefights by the unit commander may reflect the desire for suppressive fire, or may be an indication that the high rate of fire is an attempt to overcome marksmanship deficiencies.

3. Summary:

a. Qualification: A comparison of Charts 1 and 2 leads to the interesting conclusion that, except for the MOS 11B, the officers completing this questionnaire indicated no increase in proficiency in rifle marksmanship was desired above that achieved in BCT. The skill level desired for MOS 11B riflemen called for only a 7% increase in proficiency to be developed in AIT. This could possibly be due to the manner in which the questions were presented, i.e., BCT standards requested first and then AIT. This could have lead to a high standard established for BCT and then in retrospect to retain a reasonable degree of proficiency in answering the AIT portion it was impossible to indicate higher standards.

b. Range: As indicated in Charts 3 and 4 there exists a high need for training the rifleman in the application of automatic fire for offensive purposes out to a range of approximately 75 meters and for defensive application out to approximately 150 meters. Semiautomatic fire appears to have less desired application within 75 meters of the firer while it takes the preponderance of emphasis beyond 100 meters. With this in mind it would appear that training for short range engagements, less than 100 meters, should be geared toward automatic fire, and 100 meters and greater, toward the semiautomatic mode.

c. Additional training: As indicated by the questionnaires additional training has been desired and performed on most light Infantry weapons, the rifle, machinegun, Claymore mine, M72 LAW, M79 grenade launcher and hand grenades. It cannot be determined from the questionnaire why this training has been necessary, but it may be conjectured that it serves to increase cross training of MOS's into the area of weaponry and to increase the proficiency level of the already trained personnel. Of the officers completing the questionnaire, 79% indicated their units did in fact, conduct this in-country additional training for reasons unexplained, except possibly as above.

d. Initiation of firefights. The analysis of this questionnaire indicates an extremely high percentage of firefights are initiated by enemy fire. It would become evident that considerably more proficiency is required in target detection and initial reactions to enemy initiated engagements (immediate reaction).

e. Initial Reaction: In approximately 50% of the units the requirement has been delegated to the individual infantryman's level to determine the course of action to take when encountering the enemy. Although this degree of freedom of action is not undesirable, consideration should be given to providing training exercises that present similar situations that will enable the Infantryman to practice making the required decisions in a manner that they become reflex rather than creating a momentary period of indecision. Consideration should further be given to providing similar training to small unit leaders that will enable them to provide the proper guidance and command control.

ADVANCED COURSE QUESTIONNAIRE

1. What types of operations did your unit participate in while you were assigned to it?

Airmobile	120	Night Short Range Patrol	73
Mechanized	33	Night Ambush	126
Riverine	17	Long Range Patrol	24
Cordon and Search	118	Reconnaissance in Force	112

2. How many firefights with the enemy did your unit participate in while you were assigned to it? 2,701 How many enemy KIA have resulted from such contact? 26,812 How many enemy WIA? 1,501 How many enemy captured? 1,853

3. Current M16A1 qualification in BCT is based on a record fire course wherein the soldier engages pop-up "E" and "F" type silhouette targets at each 50 meter increment between 50 and 350 meters. Target densities vary from 1 to 3 targets at a time with exposure times varying from 5 to 25 seconds depending on range to the targets and the number of targets exposed. To achieve qualification, the soldier must successfully engage 30 of 84 targets exposed.

a. Is such a level of proficiency adequate for non-infantry MOS personnel? YES 100, NO 38. If not, how many targets should each personnel be required to hit? 50%

b. In BCT, emphasis should be placed on target engagement at which of the following ranges? (Check one or more)

0-50 meters	98	250-350 meters	24
50-150 meters	120	beyond 350 meters	9
140-250 meters	71		

c. What percent of targets at various ranges should trainees be able to hit upon completion of BCT?

94%	0-25 meters	62%	150-250 meters
91%	25-50 meters	48%	250-350 meters
74%	50-150 meters	36%	beyond 350 meters

4. During Infantry AIT 11B's receive 28 hours of Advanced Rifle Marksmanship, 11H's 8 hours of Advanced Rifle Marksmanship, and 11C's no additional training.

a. With this training in mind what percentage of targets at various ranges should trainees of each MOS be able to hit upon completion of AIT?

11B	11C	11H	
94%	91%	90%	0-25 meters
91%	87%	79%	25-50 meters
80%	71%	73%	50-150 meters
68%	60%	58%	150-250 meters
55%	47%	45%	250-350 meters
43%	35%	35%	Beyond 350 meters

b. Based on your answers to the above questions, what range for target engagement should be emphasized for the rifleman 11B.

Offense:		
Automatic fire:	0-50 meters 81	250-350 meters 2
	50-150 meters 53	beyond 350 meters 1
	150-250 meters 12	
Semiautomatic fire:	0-50 meters 32	250-350 meters 4
	50-150 meters 91	beyond 350 meters 3
	150-250 meters 35	
Defense:		
Automatic fire:	0-50 meters 49	250-350 meters 10
	50-150 meters 66	beyond 350 meters 5
	150-250 meters 25	
Semiautomatic fire:	0-50 meters 23	250-350 meters 16
	50-150 meters 65	beyond 350 meters 3
	150-250 meters 56	

5. What MOS skills and knowledges need to be strengthened or added to the 11B10, 11C10 and 11H10 training programs?

a. 11B10: Commo, map reading, marksmanship, small unit tactics, patrolling, ambush, target detection, artillery adjustment, land navigation, M60 machinegun, Quick Kill.

b. 11C10: Map reading, commo, marksmanship, FDC procedures, artillery adjustment, firing with FDC, FO training.

c. 11H10: Map reading, commo, marksmanship, patrolling.

6. What in-country weapons training other than battlesight zero were personne assigned to your unit given?

M16A1 rifle 112	.45 Caliber pistol 30
M60 machinegun 87	Hand grenades 91
M18A1 Claymore AP Mine 121	M72 LAW 108

7. When your unit conducted an attack on an enemy position, which assault technique did you use most frequently?

fire and movement 84; fire and maneuver 59; assault line attack 12.

8. In what areas did your men need additional training?

delivering accuract semiautomatic fire 81
delivering accurate automatic fire 74
detecting the enemy 68
initial reaction to enemy fire 61

9. At what distance from the enemy were firefights usually initiated?

0-25 meters 30
25-50 meters 60
50-100 meters 47
100-200 meters 16
beyond 200 meters 3

10. Firefights were usually initiated by: enemy fire 119; friendly fir

11. What usually alerted members of your unit to the presence of the ene

See them 70; hear them 27; enemy fire 114; smell them 20.

12. Did your unit have an SOP regarding use of the automatic setting on M16A1 rifle? Yes 104; No 37.

If yes, who controls the use of the setting:
the rifleman himself 35
the rifleman's team leader 9
rifle squad leaders 39
rifle platoon leaders 31
company commander 2

13. Did the SOP include initial reaction to enemy initiated contact?

Yes 116; No 20. If yes, what initial reaction was prescribed?

a. All personnel direct maximum firepower in the direction from whi fire was received 60.

b. Selected personnel direct maximum firepower in the direction fro which fire was received 47.

c. Selected personnel engage observed targets only 9.

28. Which type hand grenades has your unit used in combat?

a. Fragmentation with delay fuze (M26A1 or M33) 124
b. Fragmentation with impact detonating fuze (M57 or M59) 29
c. White Phosphorous smoke (M34) 100
d. CS riot control "baseball" or canister shpaed (M7, M25 series) 8
e. Chemical smoke-white or colored (AN/M8 HC or M18 series) 101
f. Offensive "concussion" (MK3A2) 51
g. Illuminating (MKI) 26
h. Incendiary "Thermate" (AN/M14 TH_3) 51

29. Were hand grenades used by your unit in assault of a fortified enemy position? Yes 117; No 17. If so, how were hand grenades used?

By individuals on their own initiative 68
By teams oriented toward elimination of a specific objective 25
By individuals moving under control of a team leader to eliminate a specific objective 52

CONSOLIDATED ANALYSIS

1. GENERAL. In analyzing the responses from all 500 questionnaires it is concluded that the following factors could be the major causes of degradation of marksmanship skills with the M16A1 rifle in Vietnam:

(a) Indiscriminate use of automatic fire.

(b) Utilization of pointing techniques to engage targets at ranges over 50 meters.

(c) Lack of fire control within the rifle squad.

(d) Lack of fire distribution within the rifle squad.

(e) Inability to detect targets, especially during the hours of darkness.

2. TARGET ENGAGEMENT. The questionnaires did not contain specific questions pertaining to the type targets being engaged with the M16A1 rifle but certain inferences can be drawn from a variety of questions. In the rifleman's questionnaire 111 individuals (53%) indicated they had been ambushed by an enemy force. This situation is validated by responses from NCO's, company grade officers, and advanced course students in which they indicated that firefights are usually initiated by enemy fire at ranges of 50 meters or less. Under these conditions only 57% of the riflemen querried indicated they had seen a clearly defined enemy and fired at him during daylight hours. Seventy percent of the individuals that know or think they have successfully engaged enemy targets obtained their hits at ranges of 100 meters or less. Thirty-five percent of the riflemen have detected and engaged targets at night with most hits being obtained at ranges of 50 meters or less. When the target is within 50 meters, 45% of the riflemen deliver area fire. If the range is increased from 50 to 150 meters and the rifleman is receiving fire, 33% employ area fire. This data tends to infer that the characteristics of the targets most commonly engaged by the rifleman are as follows:

a. At ranges from 25-100 meters.

b. Engagement is initiated by enemy fire.

c. Target is not clearly defined. (Employment of area fire)

3. AUTOMATIC FIRE.

a. Indications are that the following factors have a direct influence on the riflemen's decisions to engage targets utilizing the automatic mode:

(1) Unit SOP's which require the rifleman to deliver maximum fire in the direction from which fire was received.

(2) Time pressure imposed by close range targets (0-50 meters) or receipt of enemy fire.

(3) Multiple or area type targets.

(4) Lack of fire control by NCO's.

b. The advanced course students, brigade, and battalion commanders have recommended that training emphasis be placed on automatic fire at ranges from 0-150 meters. Few officers recommended emphasis beyond the 150 meter range. These recommendations may have been influenced by the fact that a majority of the riflemen and NCO's (if automatic riflemen are included) indicated that automatic fire is used, when under time pressure, out to ranges of 125-150 meters. If these fires are not effective, it is logical that these officers would recommend training emphasis in this area if the nature of the target requires a heavy volume of fire.

4. SIGHTING TECHNIQUES. The analysis of the rifleman and NCO questionnaires clearly indicates that there is a direct relationship between the pointing technique of sighting and automatic fire. It appears that the rifle sight is seldom used when firing in the automatic mode. This engagement technique is also probably related to the number of individuals that employ area type fire when under time pressure. Mental stress, immediate danger, and concealed targets are some of the factors that could cause this type of reaction.

5. FIRE CONTROL.

a. Only 5% of the riflemen indicated they would wait for orders to engage targets from 150 to 350 meters if they were receiving fire. If they were not receiving fire, only 17% would wait for orders before engaging targets from 150 to 350 meters. Approximately 4% of the NCO's indicated their unit would wait for orders if receiving fire.

b. The company grade officers and advance course students were querried on who controlled the automatic setting on the M16 within their units. Approximately 1/3 of these officers indicated the riflemen controlled the setting within their unit, about 40% indicated the squad leader. The majority of the remaining responses indicated the platoon leader. Very few individuals specified the fire team leader as the individual controlling automatic fire which could account for the individual actions of the riflemen.

6. FIRE DISTRIBUTION. Responses from the riflemen and NCO's strongly indicate that individual rather than unit fires are employed to engage most targets. This analysis is based on the following data:

a. A very small percent of the riflemen (5% to 17%) wait for orders before engaging targets at ranges from 150-350 meters.

b. When under time pressure a majority of the riflemen deliver area fire using the pointing technique for sighting the weapon.

c. The fire team leader is utilized in very few units to control the fire of the riflemen.

7. LEVELS OF PROFICIENCY.

a. Basic Combat Training. The brigade and battalion commanders (30 officers) were asked if they had found men in other than Infantry MOS's with sufficient knowledge to participate in combat operations and to defend themselves and their installation. Eight individuals 26.6% indicated they had not. The advanced course students (142 officers) were further queried as to whether the 35% hit probability required to qualify with the M16 Rifle in BCT was adequate. Thirty-eight (27%) officers responded that this skill level was inadequate and recommended that the skill level be raised to 50% hit probability. A majority of the officers believed emphasis should be placed on engaging targets from 0 to 150 meters in BCT. Chart 1 reflects an average of the responses received on desired hit probability at various ranges for BCT and 11B10 AIT. The BCT skill level shown is not consistent with other responses in that 71% of these officers stated that a 35% hit probability for qualification was adequate and that training emphasis should be placed on target engagement from 0-150 meters. Based on other data received, the 60% to 50% hit probability at ranges from 200-275 meters may be desired but is not required of the BCT graduate.

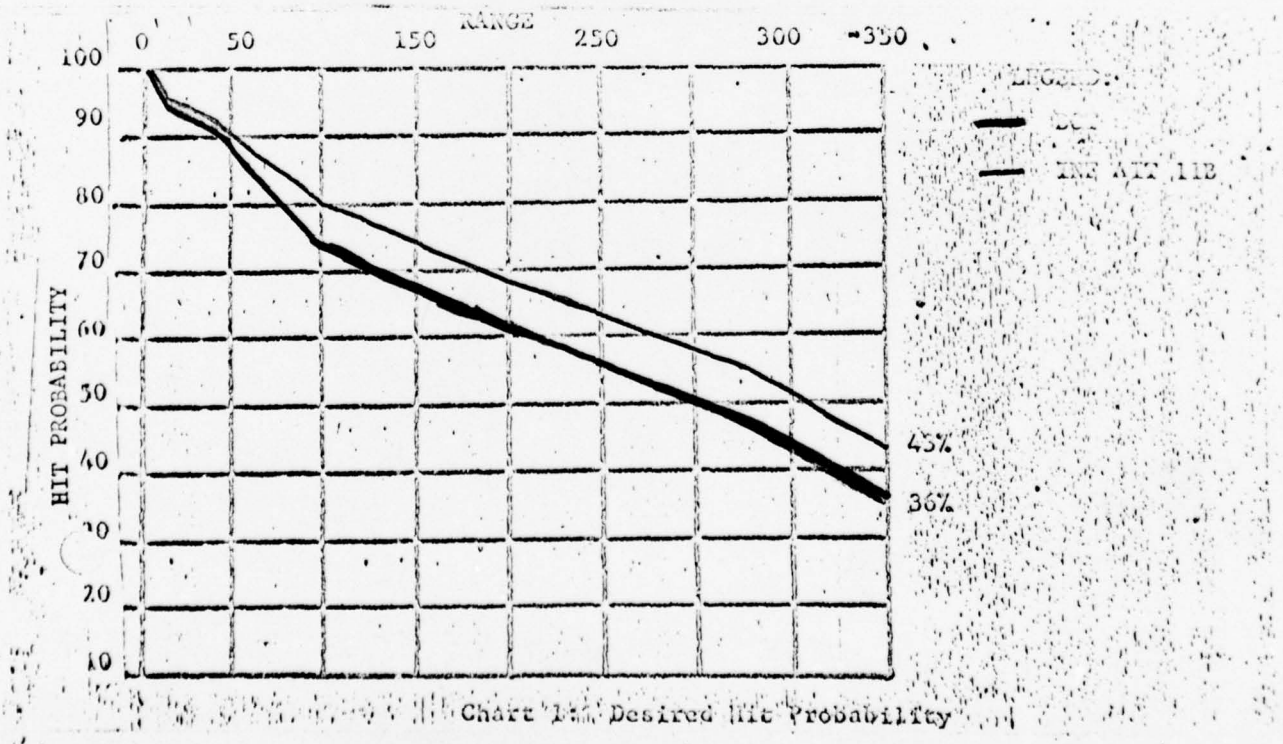


Chart 1: Desired Hit Probability

b. Infantry AIT. The brig[illegible] battalion commander responses for marksmanship performance levels in Infantry AIT are shown in Chart 2. A comparison of Charts 1 and 2 reveals that proposed standards for the riflemen are for all practical purposes the same and standards for MOS's 11C and 11H closely parallel proposed BCT standards.

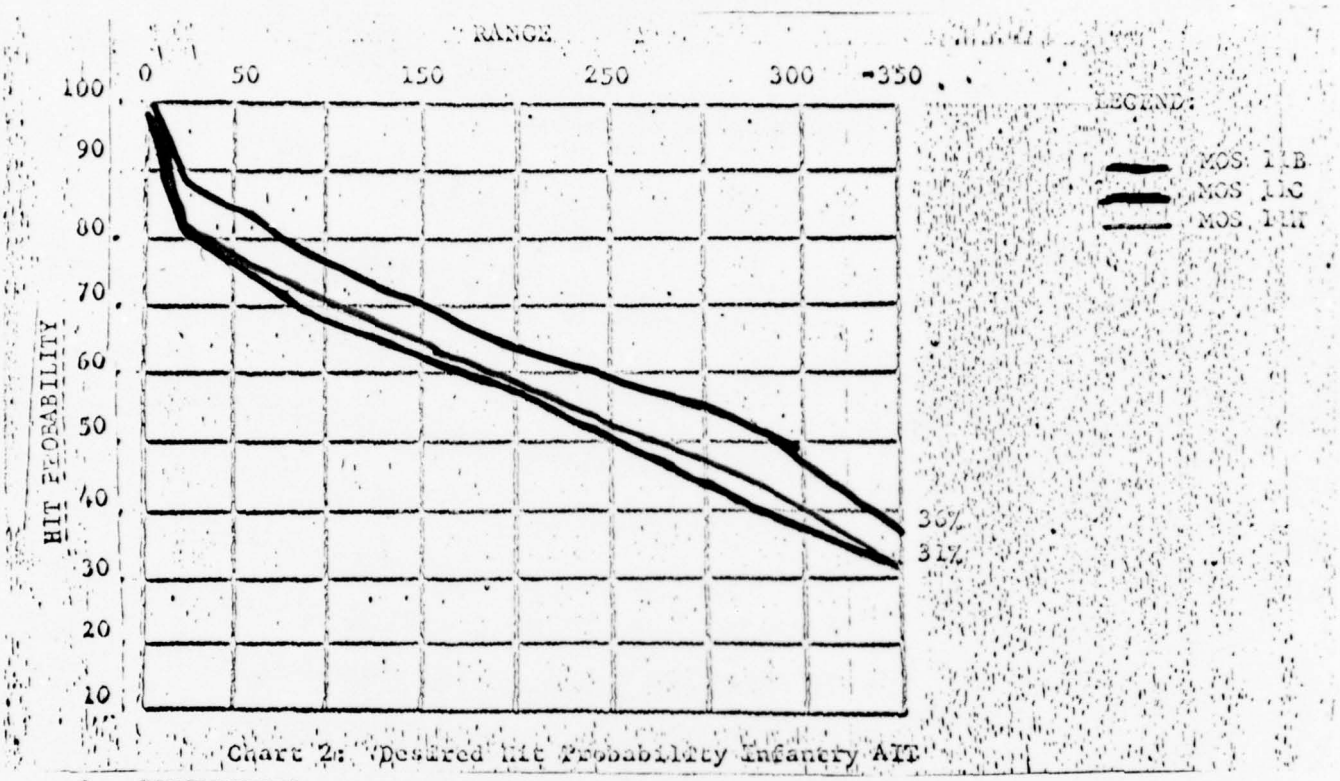


Chart 2: Desired Hit Probability Infantry AIT

8. CONCLUSIONS.

a. Riflemen in RVN are not applying marksmanship techniques as they are taught in BCT and Infantry AIT.

b. To increase hit probability within the rifle squad, target engagement must be more closely supervised by squad and fire team leaders.

c. Individuals should be trained and tested in selecting the correct mode of fire to engage a variety of targets under varying time pressures.

d. Increased training emphasis should be placed on engaging realistic targets at ranges from 15 to 150 meters.

e. The requirement to train the BCT soldier to engage targets beyond 200 meters is practically nil.

f. A wider variety of light Infantry weapons training should be taught in BCT.

g. Qualification combat field firing should be conducted in Infantry AIT under simulated combat conditions.

ANALYSIS OF QUESTIONS PERTAINING

TO MACHINEGUNNERS

CONTENTS

ANALYSIS OF MACHINEGUNNER QUESTIONNAIRES

1. Background:

a. Source: Information contained in this document is based on questionnaires completed by 43 machinegunners serving with 17 Infantry Brigades in RVN. Individuals that supplied this data had served an average time of 5 months in country and indicated that they had participated in wide variety of combat operations. This is confirmed in question 2 of the attached questionnaire. As an example, 72% indicated they participated in airmobile assaults; 74% participated in cordon and search operations and 97% participated in night ambushes.

b. Validity: The modesty and honesty of the individuals completing the questionnaires seems commendable. Examples of this honesty is depicted in questions 4 and 5 where individuals indicated having seen clearly defined enemy targets yet readily admit not successfully engaging the target.

c. MOS and Grade: All personnel were trained in the MOS of 11B. The rank of individuals varied from E-3 thru E-6 with the majority of personnel in the grade of E-4. All personnel indicated they were presently serving within the 11B series MOS.

2. Analysis:

a. Training requirements (questions 1 and 22). Data obtained from question 1 indicates that additional weapons training is conducted in country. Of the 43 machinegunners answering the questionnaires only 1 individual indicated that he received no in country weapons training, 80% received further training with the M16A1 rifle, 76% further training with the M79 grenade launcher, 58% further training with the M72 (LAW), 78% further training with hand grenades, 82% further training with Claymore mines, while only 30% received further training with the .45 caliber pistol, the machinegunner's individual weapon. Replies to question 22 indicate 84% of the individuals used both the M16A1 rifle and hand grenades sometime during their tour in RVN, while only 32% used the M72 (LAW) and/or .45 caliber pistol.

b. Target detection (Questions 4 and 5). During daylight hours 67% of the total number of individuals replying to the questionnaire indicated they had seen a clearly defined enemy, while only 41% indicated the same during hours of darkness. The machinegunners were not questioned about the use of night visual aid devices, so it is not possible to determine what portion of the responses resulted through the use of night vision devices.

c. Hit probability (Questions 4, 5 and 19).

(1) The machinegunners indicating by their responses that they saw and engaged clearly defined enemy targets during the hours of daylight, gave varied responses from specific numbers to the undefined word "many". In this category a numerical total of 988 enemy targets were fired upon with 9% known hits and 8.6% suspected hits for a total 17.6% possible successful engagements of detected targets during hours of daylight. It may reasonably be conjectured the percent effectiveness may be actually higher than this 17.6% because it is not feasible to compute the term "many". The estimated ranges (Chart 1) involved in the above described 17.6% effectiveness indicate 20% of the engagements occurred within 50 meters of the gunners position, 36% within 150 meters of the gunners position and the remaining 45% occurred beyond 150 meters. A great deal of this short range engagement can be attributed to the prominent tendency to employ machinegunners in the role of automatic riflemen or attached to the Rifle Squad.

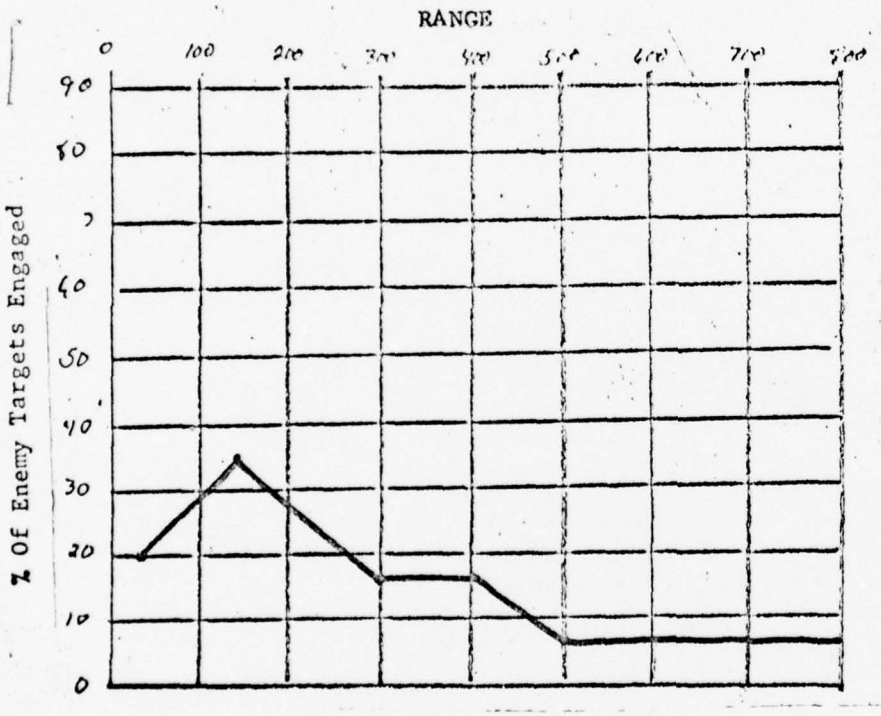


Chart 1. Known or Suspected kills during daylight.

(2) The machinegunners that replied as of having seen an enemy and fired at him during the hours of darkness (18 of 43), indicate that of the total number of targets fired at, only 10.6% of the targets engaged resulted in known kills and 17.6% resulted in suspected kills for a total of 28.3% possible successful engagements of detected targets during the hours of darkness. Again it may reasonably be conjectured that the actual hit probability is higher than the indicated 28.3% because of the inability to compute the definitive terms "many or all". The estimated ranges (Chart 2) involved

in the engagements during darkness indicate 20% of the targets engaged at the minimum range of approximately 30 meters, and 38% of the targets engaged at 80 meters, with a overall 75% of targets detected and successfully engaged within approximately 80 meters of the gunners position. Again, this can be atributed to the high percentage of machinegunners employed as automatic riflemen or attached directly to the rifle squad.

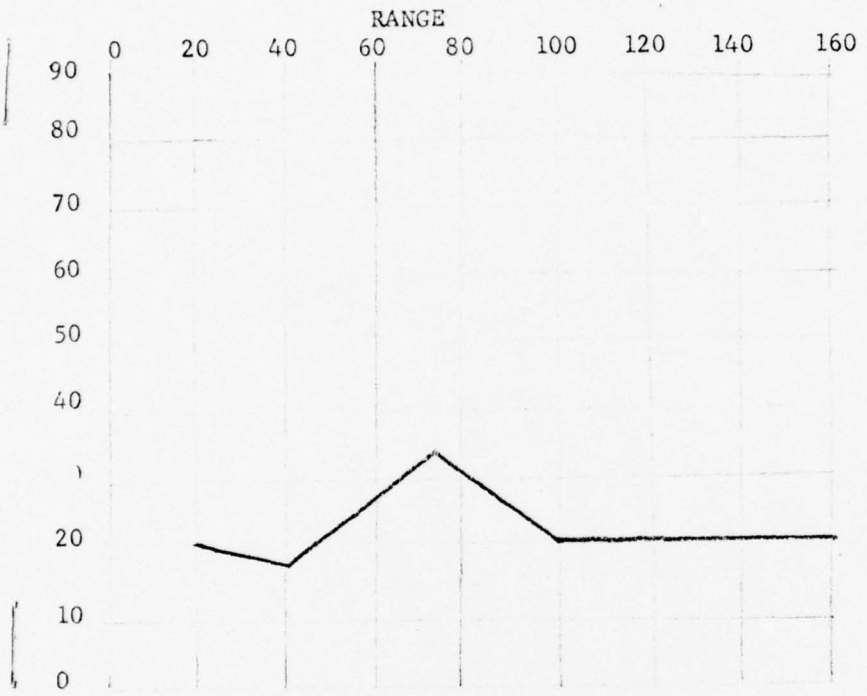


Chart 2. Known or Suspected Kills During Hours of Darkness.

(3) The majority of the machinegunners answering questions 6 and 7 (use of bipod/tripod) indicate extensive use of the bipod; 6% indicated limited use of the tripod; 27% indicated use of the tripod in defense only, while 51% indicated complete non-use of the tripod. The indicated low usage of the tripod may be attributed to weight reduction and the necessity for greater mobility while acting as AR men or attached directly to the Rifle Squad.

d. Immediate Reaction. When questioned concerning initial reaction to enemy targets while receiving fire and not receiving fire the majority of the machinegunners indicated they take cover first and then engage the target. It is interesting to note that the widest disparity between the alterntives given occurs at approximately 100 meters while the least disparity occurs between 0 to 50 meters. Speculation may be advanced to rationalize the low occurrence of individuals waiting for orders based on the high frequency of answers to Question 13 indicating employment as attached to the rifle squads rather than platoon control. Charts 3 and 4 indicate that the immediate reaction of the

of the machinegunners is related to the nearness of the target and the inherent danger to the gunner.

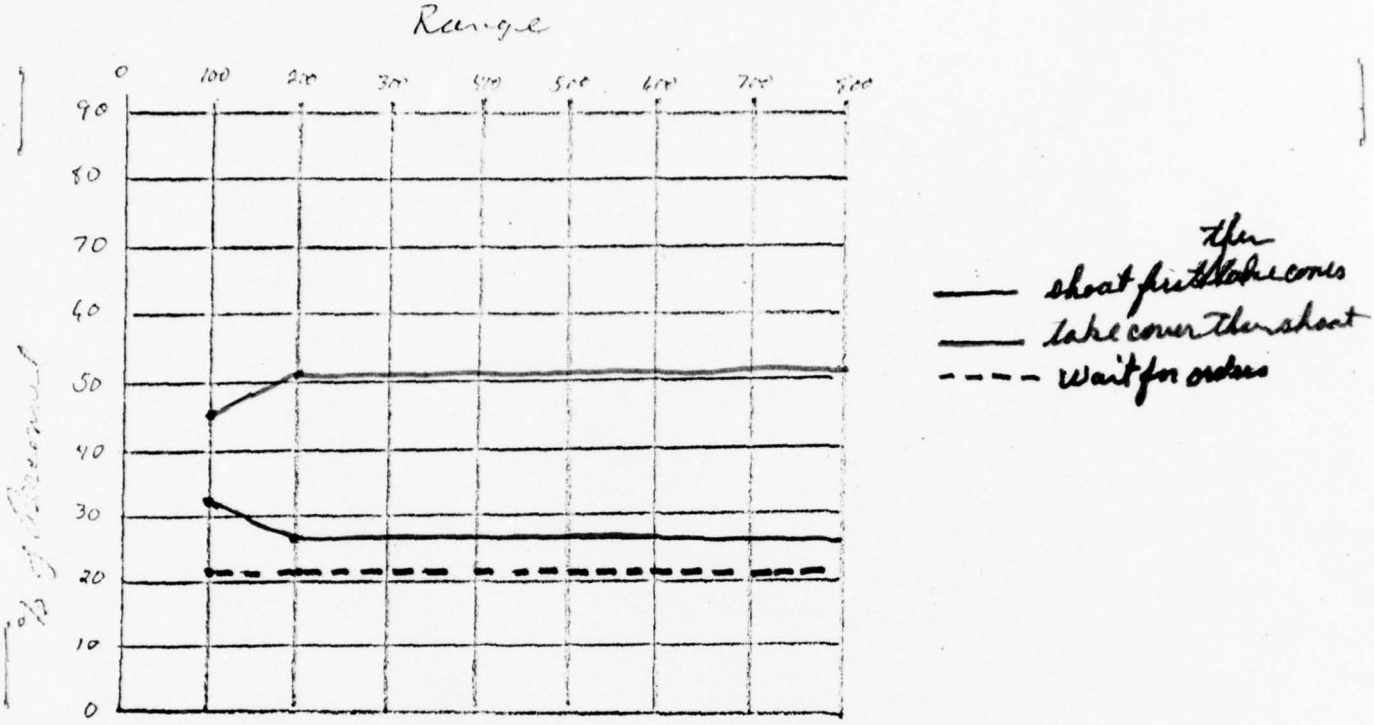


Chart 3. Immediate Reaction When Not Receiving Fire

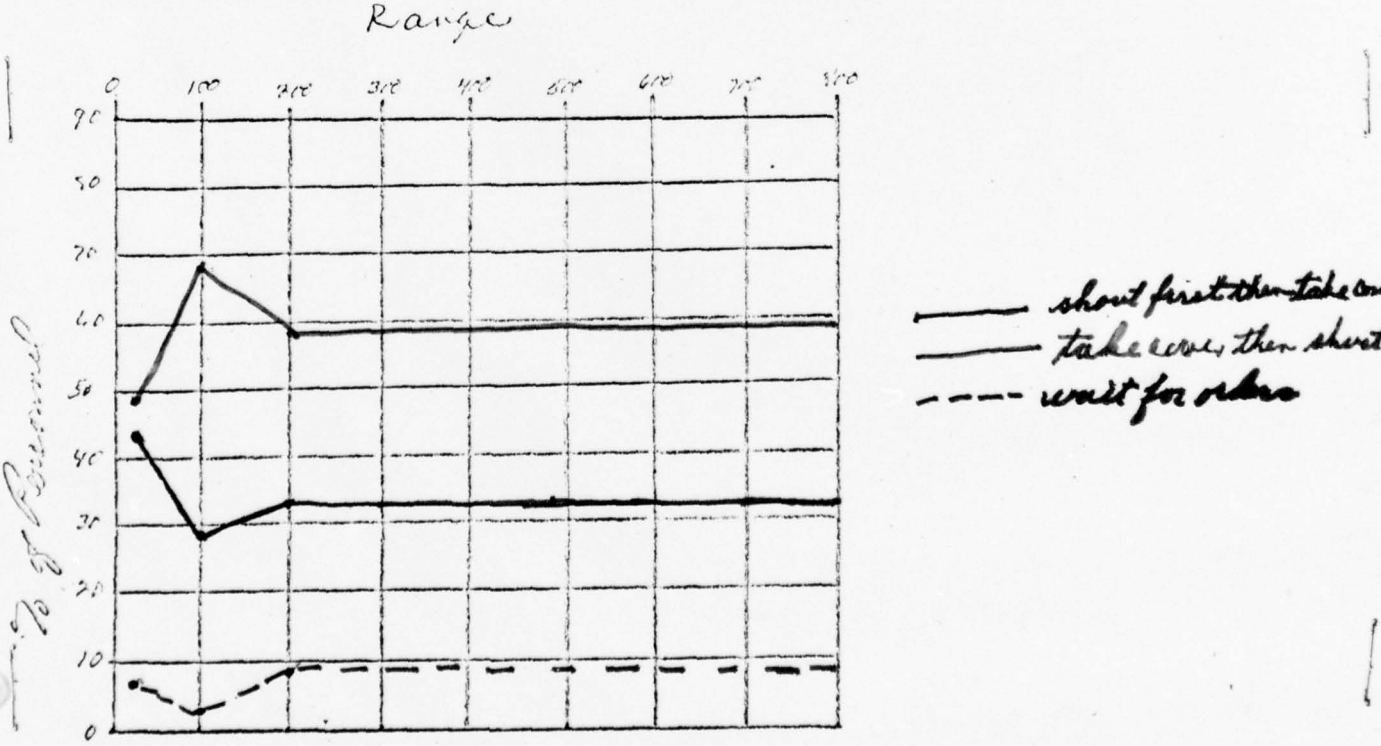


Chart 4. Immediate Reaction When Receiving Fire or Under Time Pressure

e. Fire Distribution. Analysis of the questionnaire answers relative to fire distribution (Questions 14, 15, 16, 17 and 18) reveals two factors that influence the gunner as to the method of fire distribution employed. These two factors stem from the relative amount of danger the gunner is immediately exposed to. The first factor and obviously the more influential is, if the gunner is experiencing incoming enemy fire or is under time pressure; the second factor, range to the target, appears to be less influential except when the target is located within 100 meters of the gunner. It becomes apparent that when influenced by these two factors the gunner tends to rely on area fire in large volume rather than the more selective methods of firing at groups of personnel and/or single targets. Again the high frequency of responses indicating machinegunners being attached directly to rifle squads is influential in that machinegunners are more frequently exposed to closer range enemy targets than when employed at platoon level in a supporting role.

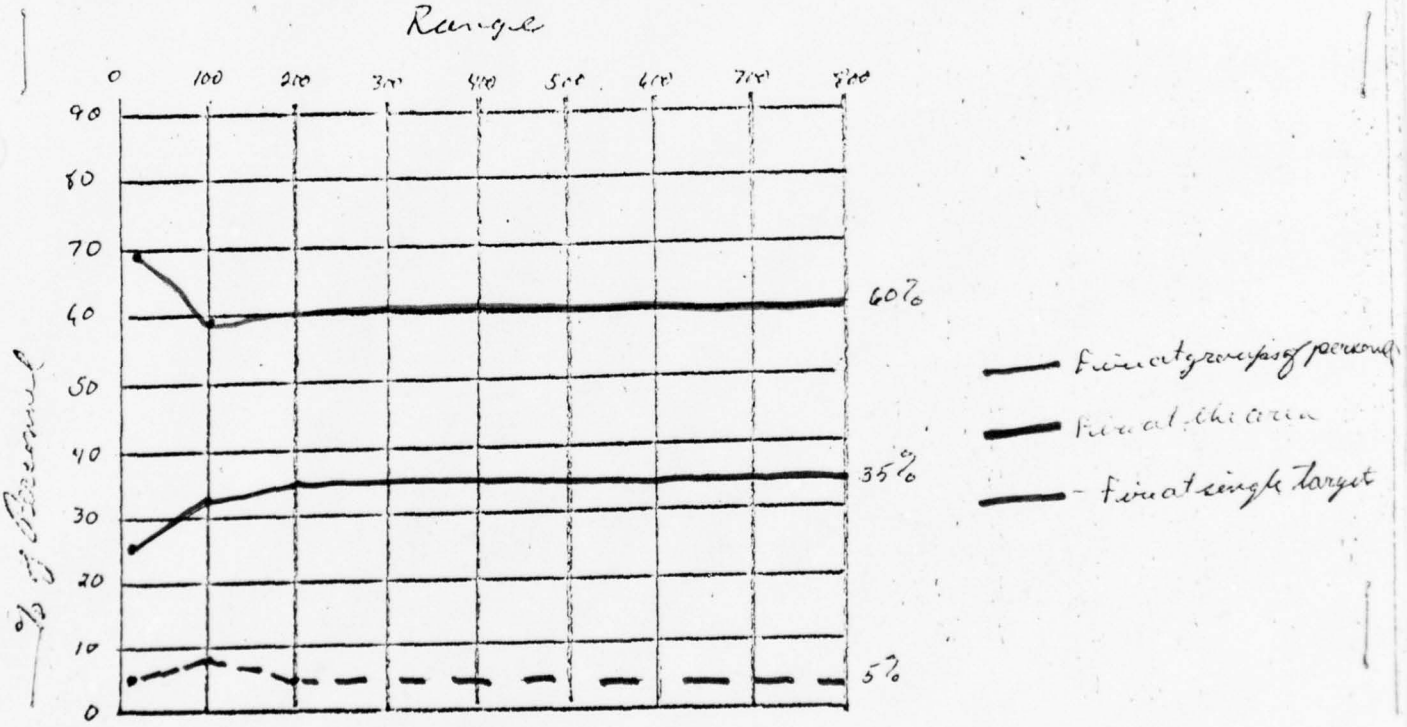


Chart 5. Fire distribution While Receiving Fire or Under Time Pressure.

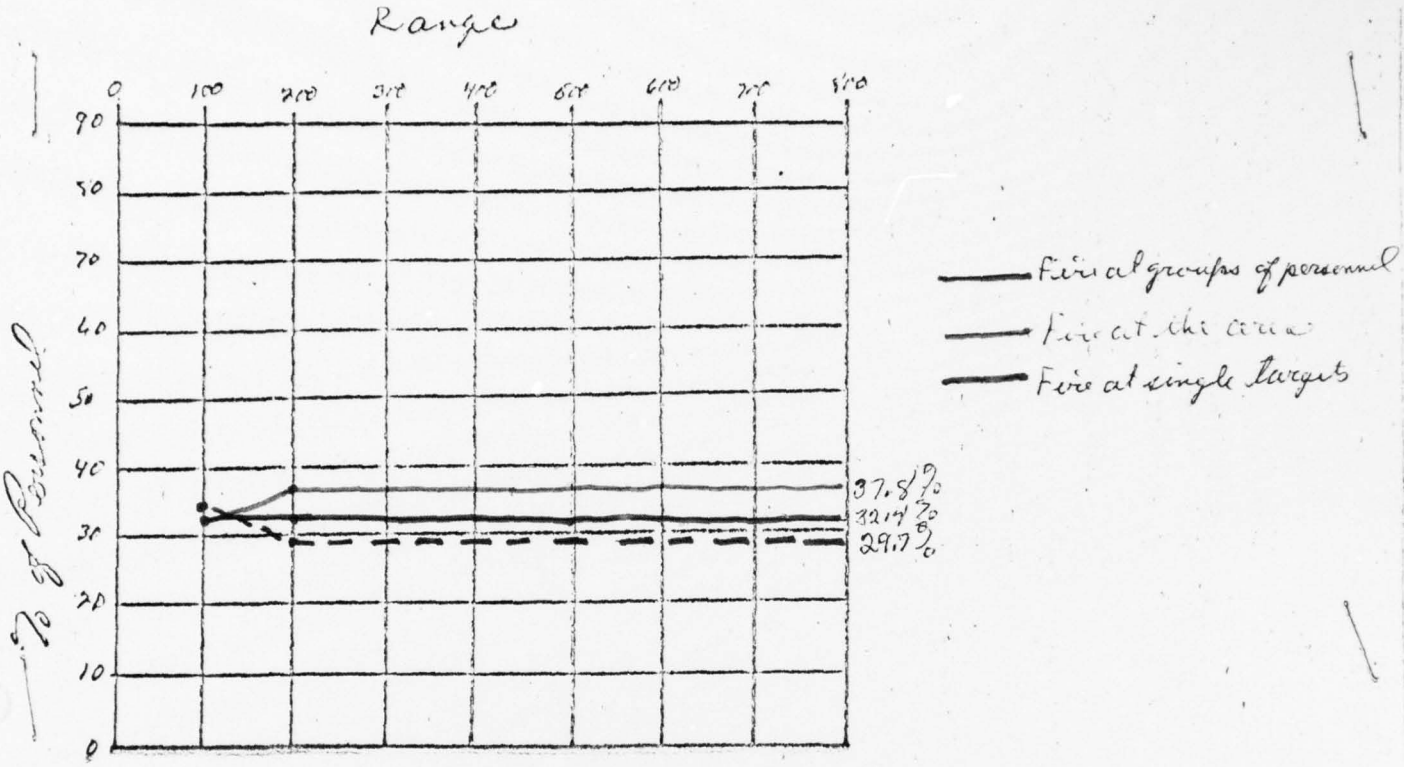


Chart 6. Fire Distribution While Not Receiving Fire

f. Range. Answers to question 11, concerning frequency of engagements by range, indicate a high frequency of occurrences at extremely close range with rapidly decreasing occurrences at ranges beyond 100 meters. Chart 7 indicates that approximately 41% of the machinegunners most frequently engage the majority of targets within 80 meters of this position, with a total of approximately 75% of engagements within 150 meters. This fact is also validated in charts 1 and 2, effectiveness of fire day and night.

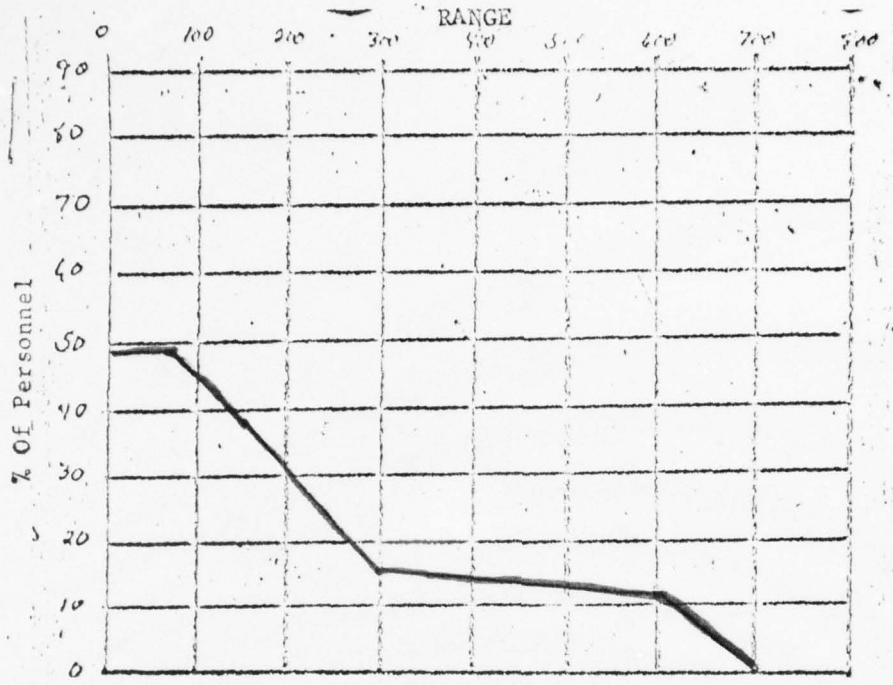


Chart 7. Most Frequent Range of Target Engagement.

g. Sighting Techniques. Analysis of questions 14, 15, 16, 17, and 18 reveals a direct correlation between the pointing technique and the use of sights as a function of danger (receiving fire) and time pressure. Charts 8 and 9 indicate a high usage of sights when engaging targets at 200 meters or beyond. At ranges less than 200 meters an equally high usage factor exists for the pointing techniques while under pressure (83%), and an extremely low usage of the pointing technique (16%) while not under pressure. The mean range that appears to influence the use of sights verses the pointing techniques is approximately 100 meters. This could be conjectured as a result the relative danger to the gunner while attached to the rifle squad or employed in the Automatic Rifleman's role.

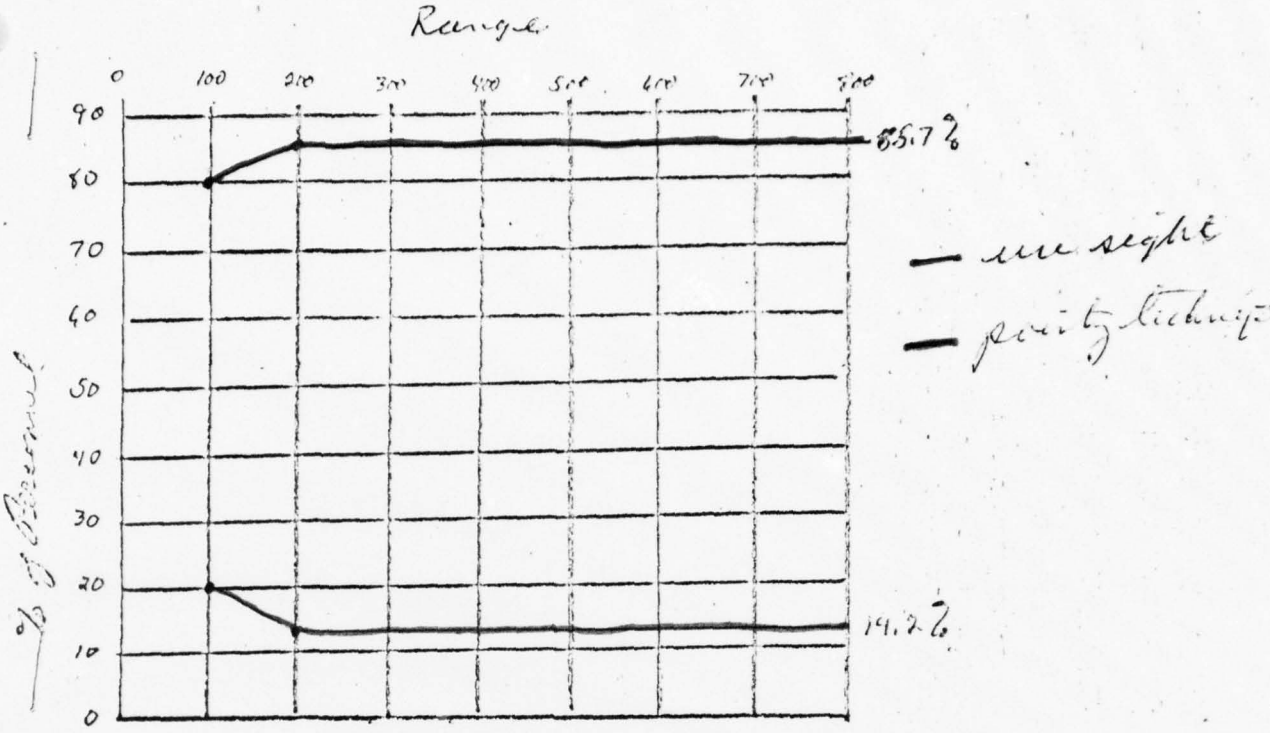


Chart 8. Sighting Techniques Utilized While Not Under Time Pressure

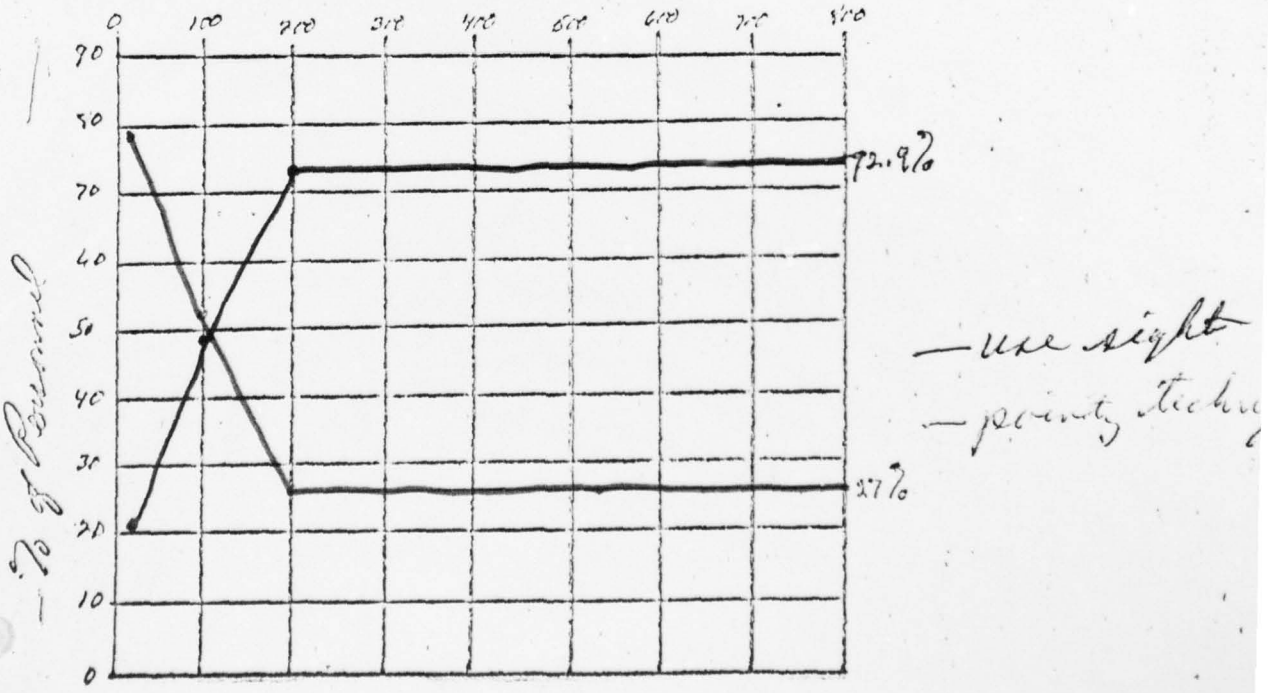


Chart 9. Sighting Techniques Utilized While Receiving Fire or Under Time Pre

h. Length of Fire Bursts. Machinegunners answering questions 14, 15,16, 17 and 18 indicate very little influences the length of the bursts fired. Predominantly a 6-10 round burst is used to engage targets regardless of type target and range. As indicated in Charts 10 and 11, with a slightly higher (10%) use of longer bursts, 10 or more rounds, while under pressure or receiving fire.

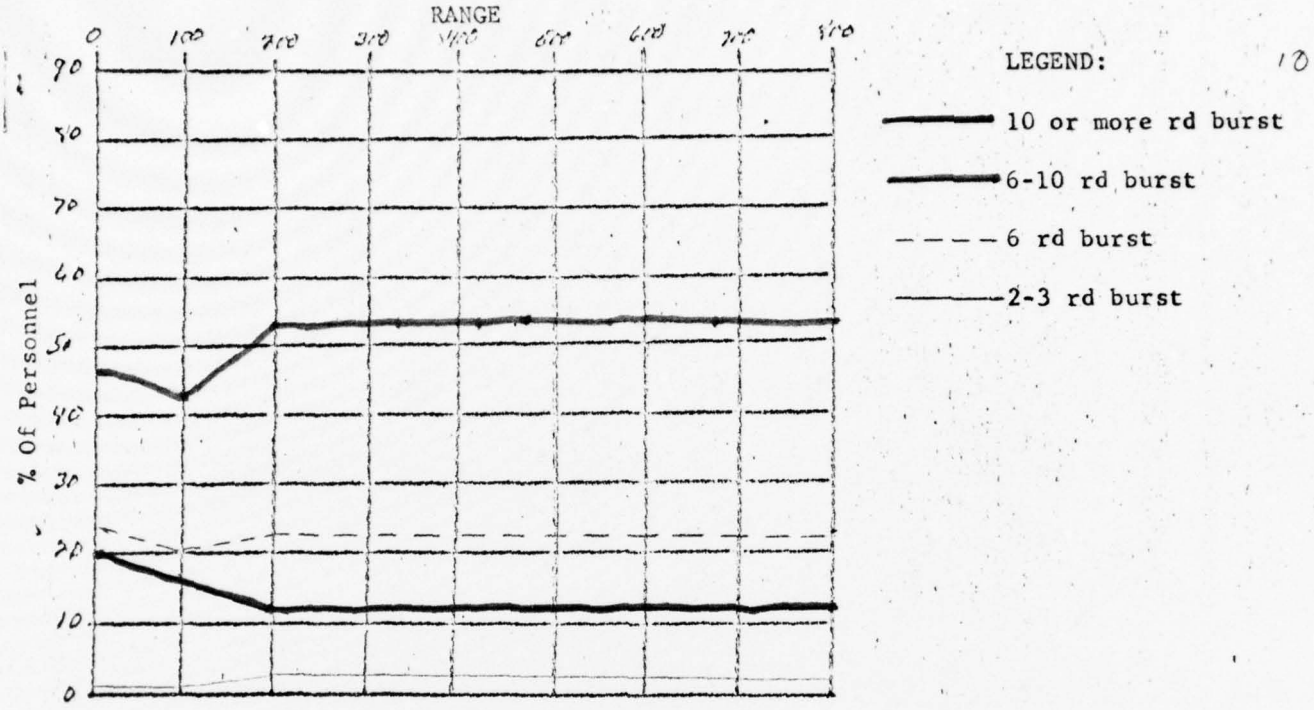


Chart 10. Number Rds Per Burst While Receiving Fire or Under Time Pressure.

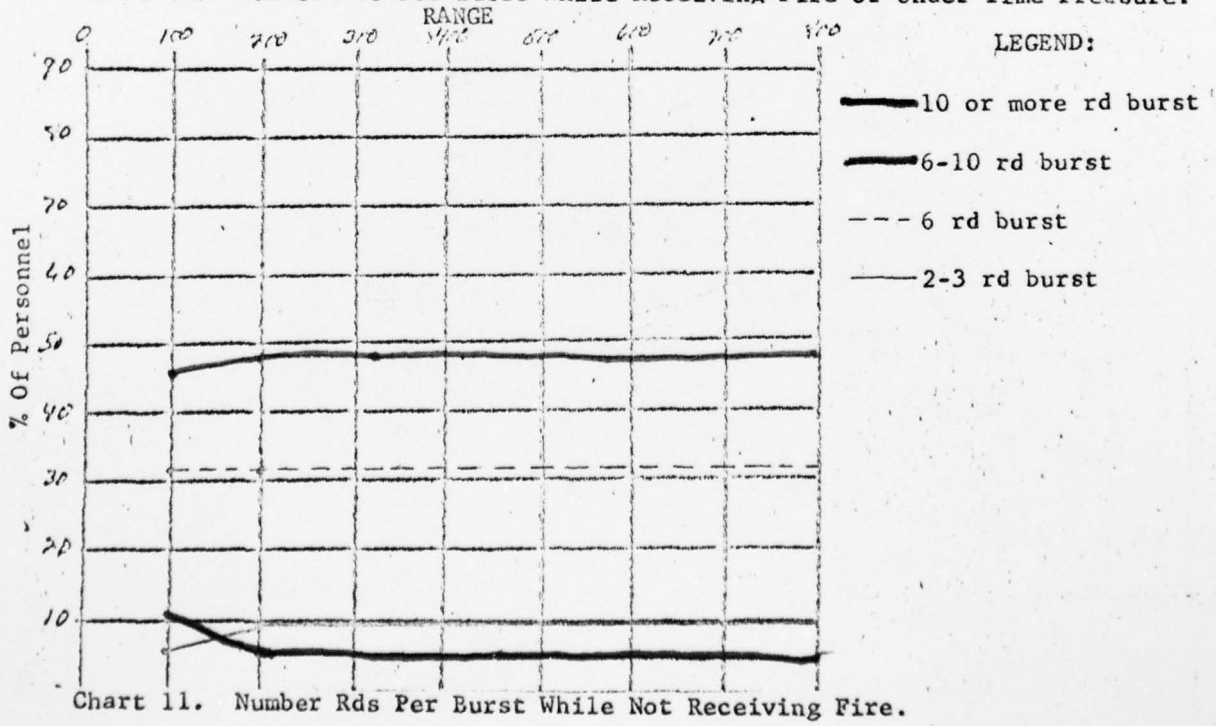


Chart 11. Number Rds Per Burst While Not Receiving Fire.

i. Effectiveness of Fire. Machinegunners answering questions 4, 5, and 19 indicate closely related reductions in hit probability as the range to the target increases during both periods of daylight and darkness. The exception being a high hit probability out to 100 meters during daylight hours. Chart 12 indicates equal effectiveness (81%) at ranges out to 25 meters for both day and night fire. Fires during daylight remain high, out to 100 meters, and then rapidly decreases in effectiveness (55%) between 100 and 200 meters, and then a more gradual decrease in effectiveness as the range to the target increases.

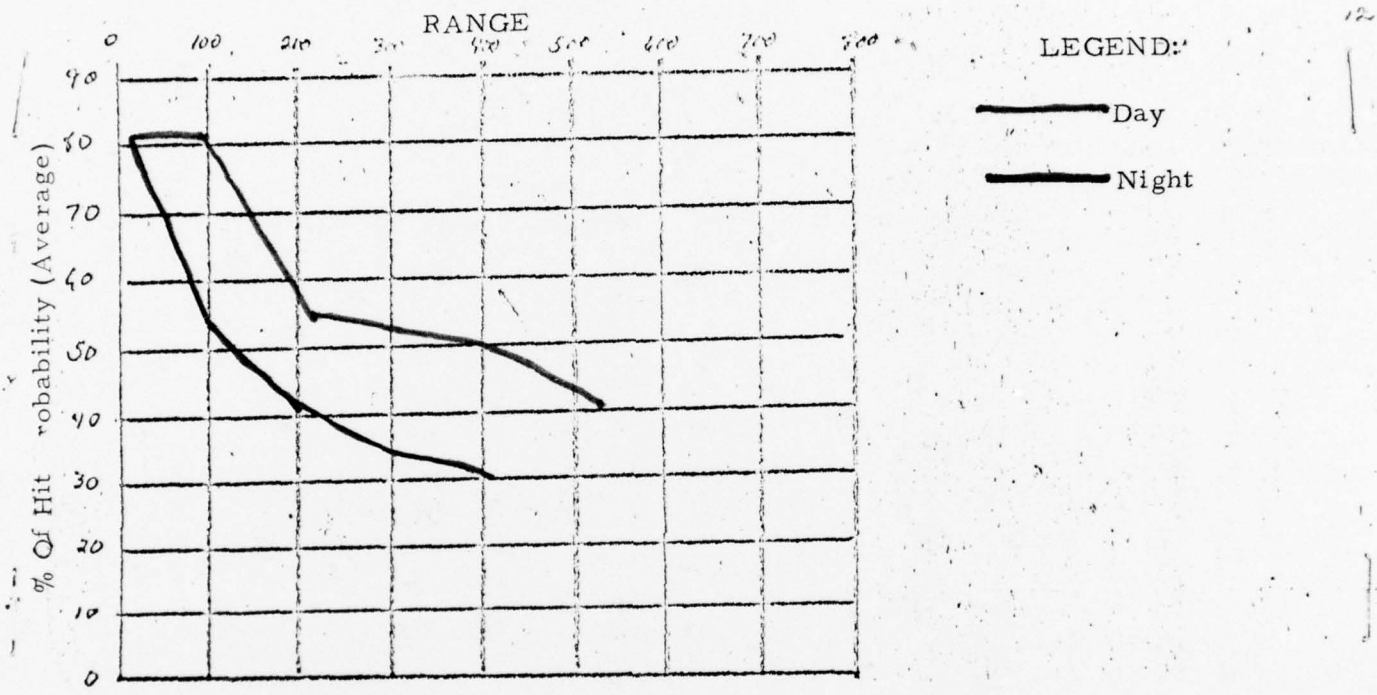


Chart 12. Effectiveness of Fire

3. Summary:

a. The most obvious and influential factor pointed out by the machinegunner questionnaire is the employment of machinegunners in an attached at squad level role, indicating usual job performances as required of the Automatic Rifleman. Such employment encompasses shorter ranges, greater maneuverability, and less gun stability than normally expected of the machinegunner.

b. Employment of the machinegunners within the Rifle Squad rather than in a supporting role at platoon level exposes the machinegunner to situations similar or identical to the riflemen. Thus, reaction time and sighting techniques become the areas of greatest deviation. Effectiveness of fire, as a resultant of the required rapid reactions, sighting techniques, weapon stability and range to most frequent targets,

peaks at approximately 150 meters during daylight and 80 meters during hours of darkness.

c. Most machinegunners indicate individual decisions as to engagement of targets rather than leader/commander control of the platoons supporting automatic weapons.

4. Conclusions:

a. Additional training emphasis should be placed on the employment of machinegunners attached to the rifle squad.

b. Machinegunners should be trained so they understand and can perform that mission previously assigned the automatic rifle within the rifle squad.

c. Emphasis should be placed on training machinegunners to fire using the integral bipod, while less emphasis is placed on firing exercises with the tripod.

d. The pointing technique of fire at close ranges has definite application and needs more emphasis.

e. Course aimed fire at mid-range has definite application and requires more training.

f. Much greater emphasis should be placed on night firing using the pointing and course aimed methods of aiming.

g. NCOC 11B receive additional training in the techniques of employing and controling the machinegun with the rifle squad.

QUESTIONNAIRE
MACHINEGUNNER

1. This questionnaire is designed to assist the Weapons Department of the United States Army Infantry School, Fort Benning, Georgia, in accumulating raw data concerning critical combat skills, knowledges, and performances required of the Light Weapons Infantryman MOS 11B10, which should upon being compiled and tabulated, provide certain information which will be used to improve marksmanship training programs for the Light Infantry Weapons.

2. You have been selected by your Squad Leader on the basis of your combat experience and knowledge to complete this questionnaire. Please answer each question and parts of questions as completely as possible by checking the appropriate block or blocks as they apply and return the questionnaire to your Squad Leader.

RANK E3 thru E6, MOS for which you were trained 11B,
Present MOS 11B, Length of time in Vietnam 5 (avg) (Months),
Squad _____, Platoon _____, Company _____,
Battalion _____, Brigade 17 Brigades, Division _____.

1. What in-country weapons training other than battlesight zero have you had since your arrival in Vietnam?
   a. M16A1 35
   b. M79 grenade launcher 33
   c. M72 (LAW) 25
   d. .45 cal pistol 13
   e. hand grenades 34
   f. claymore mines 36

2. What types of missions have you participated in? (Indicate frequency)
   airmobile assault 33
   mechanized operation 21
   cordon and search 32
   base security 37
   long range patrol 12
   night ambush 42
   short range night patrol 25
   search and destroy 34
   road clearing 23

3. How long have you been a machinegunner? _____ months

4. During daylight hours have you ever seen a clearly defined enemy and fired at him? YES 28 NO 15
   a. If yes, how many have you fired at? 888
   b. Do you know if you hit any of them? YES 16, NO 15
      If yes, how many? 89
   c. Do you think you hit any of them? YES 22, NO 7
      If yes, how many? 85
   d. What were the estimated ranges?
      0-50 meters 7
      50-150 meters 15
      150-300 meters 9
      300-500 meters 8
      beyond 500 meters 4

5. During the hours of darkness have you seen an enemy and fired at him? YES 12 NO 32.
   a. If yes, how many have you fired at? 159
   b. Do you know if you hit any of them? YES 6, NO 13
      If yes, how many? 17
   c. Do you think you hit any of them? YES 12 NO 6
      If yes, how many? 28
   d. What was the estimated range?
      0-10 meters 0
      10-30 meters 5
      30-50 meters 1
      50-100 meters 7
      beyond 100 meters 5

15. When engaging enemy targets seen, or suspected, at ranges from 50 to 150 meters, while receiving enemy fire, what type fire would you use?
a. carefully aimed 7; quickly aimed 11; pointing type not using the sights, fired from the shoulder 7; pointing type fired from the hip 1.
b. 2-3 round bursts 1; 6 round bursts 8; 6-10 round bursts 19; more than 10 round bursts 2.
c. fire at single targets 3; fire at groups of personnel 12; fire at the area 22.
d. shoot first then take cover 11; take cover then shoot 26; wait for orders 1.

16. When engaging enemy targets seen, or suspected, at ranges from 150 meters or more, while receiving enemy fire, what type of fire would you use?
a. carefully aimed 18; quickly aimed 17; pointing type not using the sights, fired from the shoulder 5; pointing type fired from the hip 1.
b. 2-3 round bursts 2; 6 round bursts 10; 6-10 round bursts 23; more than 10 round bursts 2.
c. fire at single targets 2; fire at groups of personnel 14; fire at the area 24.
d. shoot first then take cover 11; take cover then shoot 20; wait for orders 3.
e. In the offense, use the standing position 10; use the assault position 13; use the prone position 19.
f. In the defense, use the standing position 0; use the assault position 0; use the sitting position 23; use the prone position 3; use a foxhole 23.

17. When engaging enemy targets seen, or suspected, at ranges from 50 to 150 meters, while not receiving enemy fire, what type fire would you use?
a. carefully aimed 17; quickly aimed 11; pointing type, not using the sights, fired from the shoulder 2; pointing type from the hip 5.
b. 2-3 round bursts 3; 6 round bursts 14; 6-10 round bursts 20; more than 10 round bursts 5.
c. fire at single targets 13; fire at groups of personnel 12; fire at the area 12.
d. shoot first then take cover 12; take cover then shoot 17; wait for orders 8.

18. When engaging enemy targets seen, or suspected, at ranges from 150 meters or more, while not receiving enemy fire what type fire would you use?
a. carefully aimed 38; quickly aimed 4; pointing type, not using the sights, fired from the shoulder 2; pointing type from the hip 2.
b. 2-3 round bursts 4; 6 round bursts 14; 6-10 round bursts 21; more than 10 round bursts 1.
c. fire at single targets 11; fire at groups of personnel 12; fire at the area 14.
d. shoot first then take cover 12; take cover then shoot 19; wait for orders 8.

19. How effective has your MG fire been?

a. daylight at ranges from:

(1) 0-50 meters: hardly ever miss 23; about half and half 8; hardly ever hit 4.

(2) 50-150 meters: hardly ever miss 23; about half and half 8 hardly ever hit 0.

(3) 150-300 meters: hardly ever miss 10; about half and half 29 hardly ever hit 3.

(4) 300-500 meters: hardly ever miss 5; about half and half 31 hardly ever hit 5.

(5) beyond 500 meters: hardly ever miss 1; about half and half 2; hardly ever hit 13.

b. darkness at ranges from:

(1) 0-50 meters: hardly ever miss 19; about half and half 16; hardly ever hit 0.

(2) 50-150 meters: hardly ever miss 6; about half and half 21; hardly ever hit 2.

(3) 150-250 meters: hardly ever miss 0; about half and half 2; hardly ever hit 0.

(4) 250-350 meters: hardly ever miss 0; about half and half 16; hardly ever hit 3.

(5) beyond 350 meters: hardly ever miss 0; about half and half 1; hardly ever hit 27.

20. What kinds of grenades have you used in combat?

M34 WP smoke 14
M57,M59 impact 5
M26A1, M33 fragmentation 39
M18 colored smoke 37
AN/M8 white smoke 7
CS riot control 13
Incendiary (chermate) 8
MK3A2 Offensive (concussion) 12

21. When throwing hand grenades, how often have you used the cook-off technique (pull pin, release the handle allowing the striker to fall, and throw)?

Often 2; seldom 11; never 27.

22. What weapons in addition to the M60 MG have you used during a combat operation?

M16A1 rifle 37
M79 grenade launcher 23
M72 (LAW) 14
.45 cal pistol 14
hand grenades 17
claymore mines 13

Addendum 1: Analysis of Squad Leader and Platoon Sergeant Responses

Addendum 1
SUBJECT: Analysis of Machinegunners Questionnaire

1. Background: See addendum 1 to analysis of Riflemen Questionnaire.

a. Source.

(1) Analysis of Machinegunner Questionnaire.

(2) Analysis of Squad Leader, Platoon Sergeant Questionnaire.

(3) Analysis of Rifleman Questionnaire.

b. Validity. See addendum 1 to analysis of Riflemen Questionnaire.

2. Analysis:

a. Employment: When questioned, pertaining to levels at which machineguns are employed, the machinegunners responded that in the offense 75% were employed either in the automatic rifle role within the rifle squad or attached to the rifle squad. Responses by machinegunners concerning employment in the defense indicate that 63% of the machinegunners are employed in the automatic rifle role within the rifle squad or attached to the rifle squad. A composite, indicative of offense and defense employment, would be 69% overall employment in the automatic rifle role within the rifle squad or attached to the rifle squad. Squad leaders indicate that overall employment of machinegunners in the same categories is 68%, while Platoon Sergeants indicate 88% employment in the automatic rifle role/attached within the rifle squad.

b. Target Engagement: The high incident of machinegunners employed as automatic riflemen or attached to the rifle squad relate directly to common techniques of target engagement. Chart #1 indicates common sighting techniques used both by machinegunners and riflemen. Both groups of personnel employ pointing techniques of aiming out to 25 to 50 meters. Between 50 to approximately 125 meters the pointing technique rapidly decreases in usage and sighting techniques rapidly become more predominant. At ranges of 25 meters or less, 80% of the Machinegunners and designated automatic riflemen employ the pointing technique and only 20% use the sights in some manner while aiming. Conversely the opposite trend is true as the range increases so that at a range of 200 meters 73% of the machinegunners and designated automatic riflemen use the sights while only 27% use a pointing technique, even while receiving fire or under time pressure. As indicated in Chart #1 the common range at which the usage of the sights in aiming overcomes the usage of the pointing technique is approximately 125 meters, a range considerably greater than that at which the pointing technique is presently taught and practiced during marksmanship training.

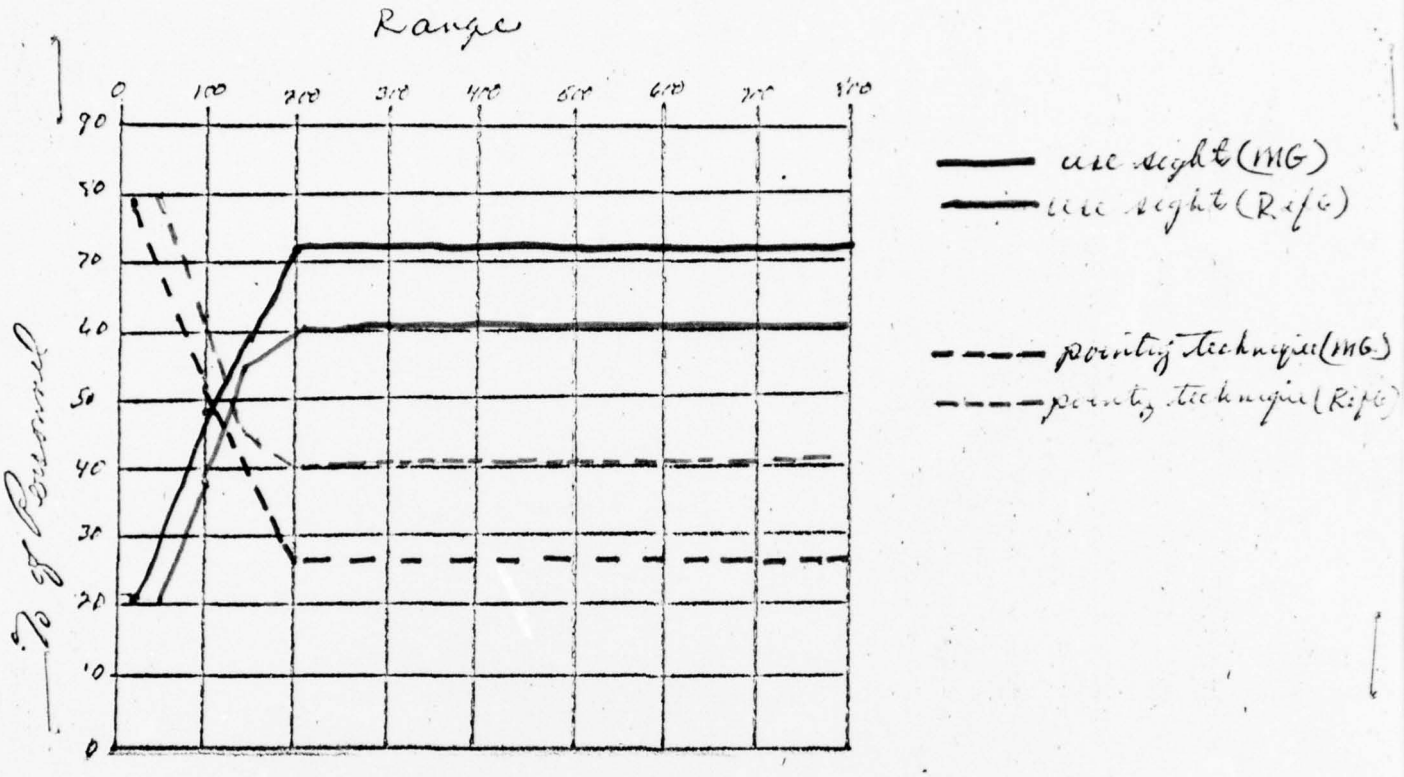


Chart #1. Percent of Personnel Using Sighting Techniques Under Time Pressure or Fire.

c. Fire Distribution: A comparison of responses made by machinegunners and the squad leaders/platoon sergeants concerning automatic riflemen (designated) reveals some disparity (less than 20%) in the number of responses describing fire distribution, yet it clearly shows great similarity of methods, i.e., fire at the area, fire at groups of personnel and fire at single targets. This similarity indicates that the method employed is a function of range. Area fire (Chart #2) is employed by the majority of personnel, followed by engagement of groups of personnel (Chart #3) with the least used method is engagement of single targets (Chart #4). Area fire and single target engagement have similar, although unequal, trends, (automatic riflemen vary a greater amount than machinegunners) while fire employed to engage groups of personnel indicates dissimilar trends, it also indicates the least variance between numbers of responses. Chart #2 indicates the highest percentage of machinegunners and automatic riflemen (55-69%) fire at

the area while receiving fire or under time pressure from a range of 0-50 meters, with an approximate 10% reduction in numbers at ranges greater than 50 meters (42-60%).

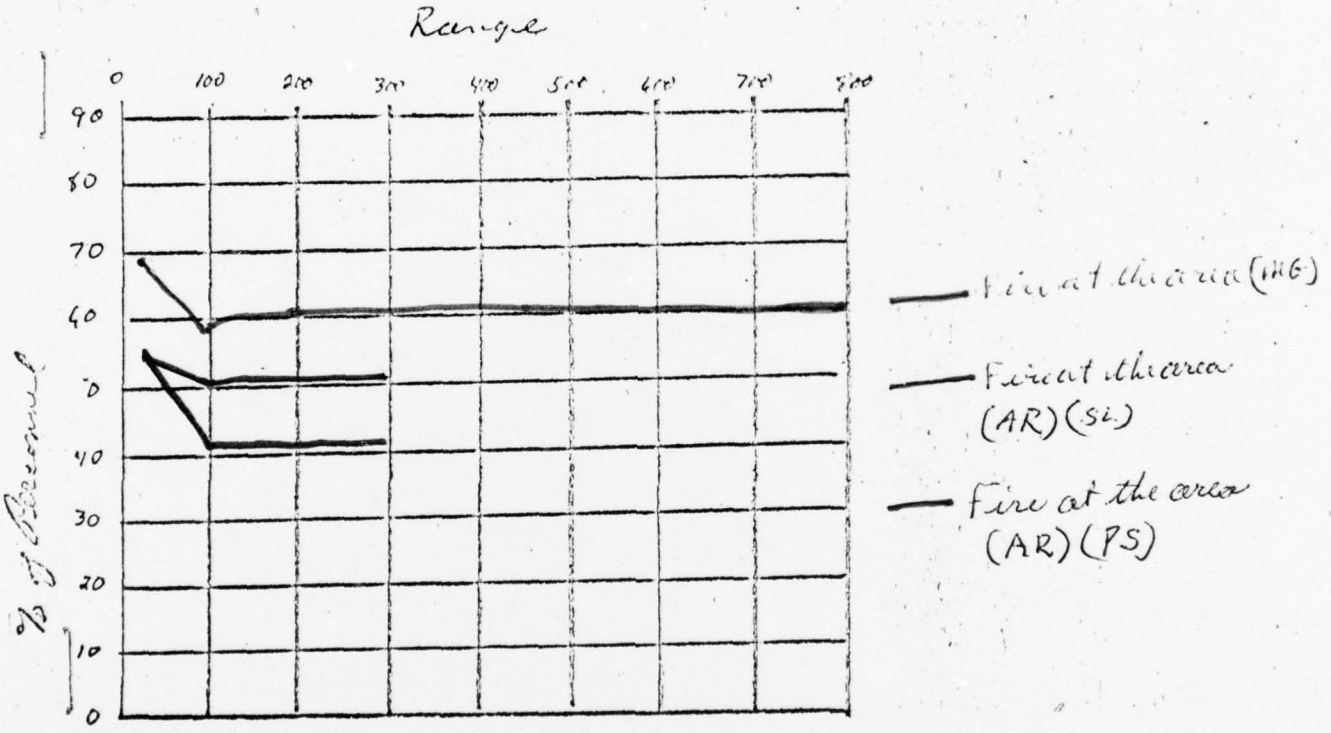


Chart #2. Fire Distribution While Receiving Fire or Under Time Pressure

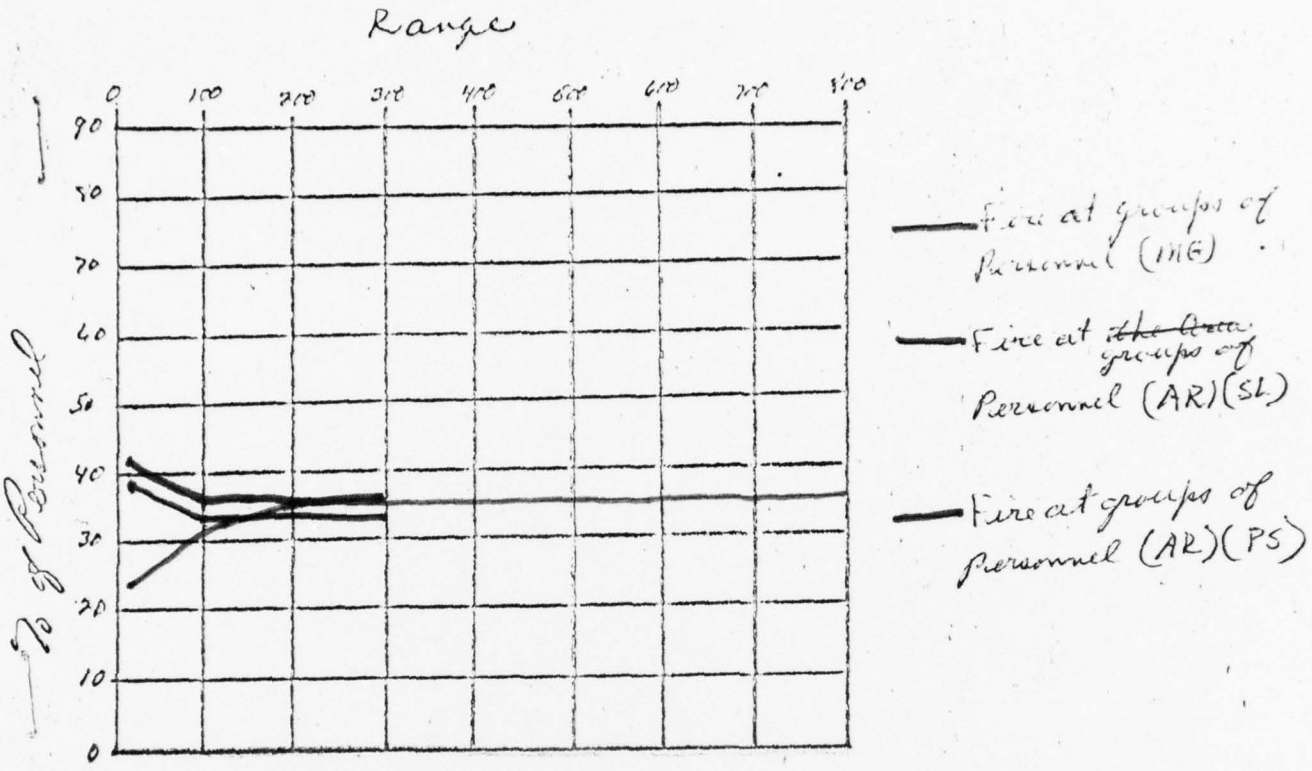


Chart #3. Fire Distribution While Receiving Fire or Under Time Pressure.

Chart #3. Depicting the second most numerous group of responses, indicates 24-42% of the machinegunners and automatic riflemen fire at groups of personnel under the same circumstances out to 50 meters and beyond 50 meters approximately only 35% fire at groups of personnel.

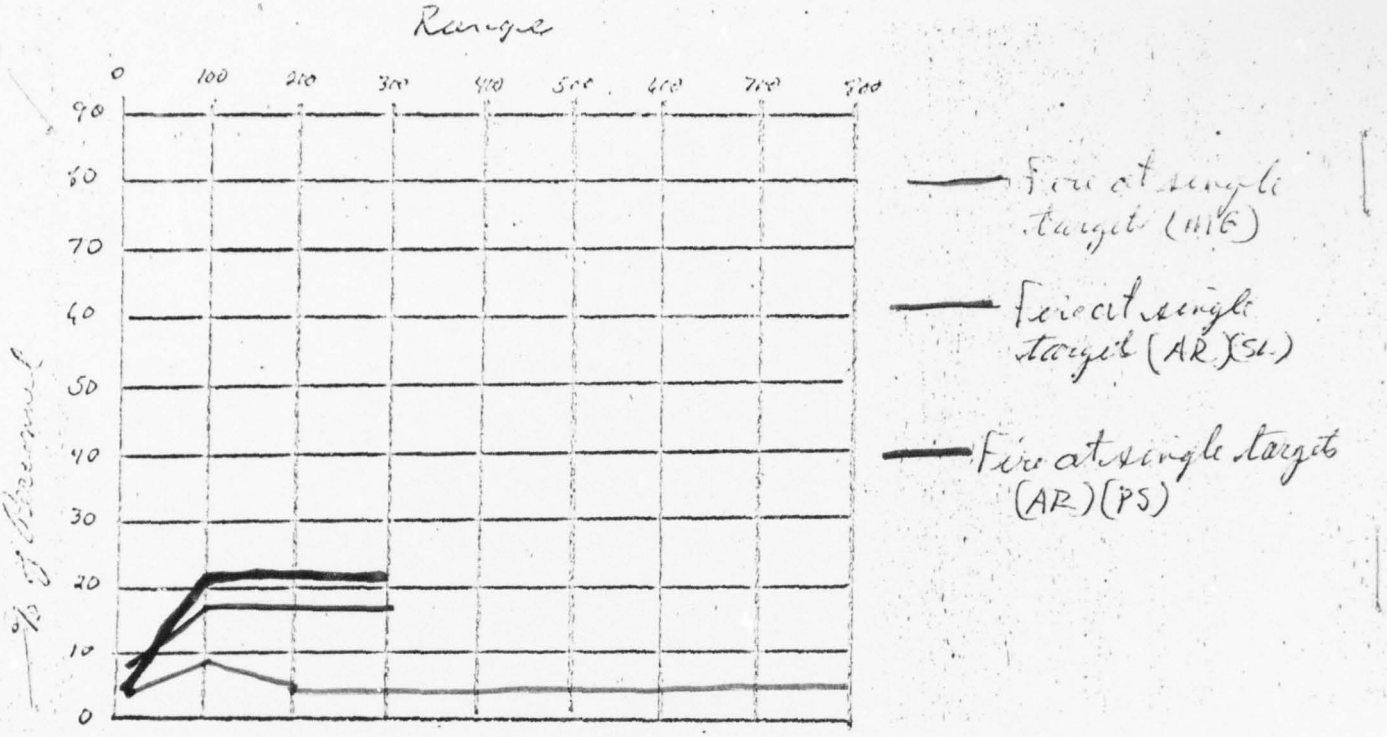


Chart #4. Fire Distribution while Receiving Fire or Under Time Pressure.

Chart #4, representing the smallest number of responses, indicates that at ranges less than 50 meters only approximately 4-8% of the firers engage single targets and beyond 50 meters 8-22% select and engage single targets.

The inferrence can be made thru the analysis of Charts #2, 3, and 4 that the machinegunners and automatic riflemen generally employ similar techniques of fire distribution under similar circumstances. by first firing at the suspected area, then at groups of personnel randomly, and lastly only a relating small number of firers engage single targets. Possible causative factors may be fear, poor target detection, a lack of fire discipline, and inadequate fire distribution.

d. Immediate reaction: A comparison of machinegunners responses and squad leader/platoon sergeant, and rifleman responses describing performances of the automatic riflemen/rifleman when receiving fire or under time pressure reveal almost identical immediate reaction (Charts #5, 6, and 7). This similarity of reactions indicates that because a large number of machine-gunners are employed within the rifle squad are exposed to the same dangers, the immediate reactions by all are factors of range and immediate danger.

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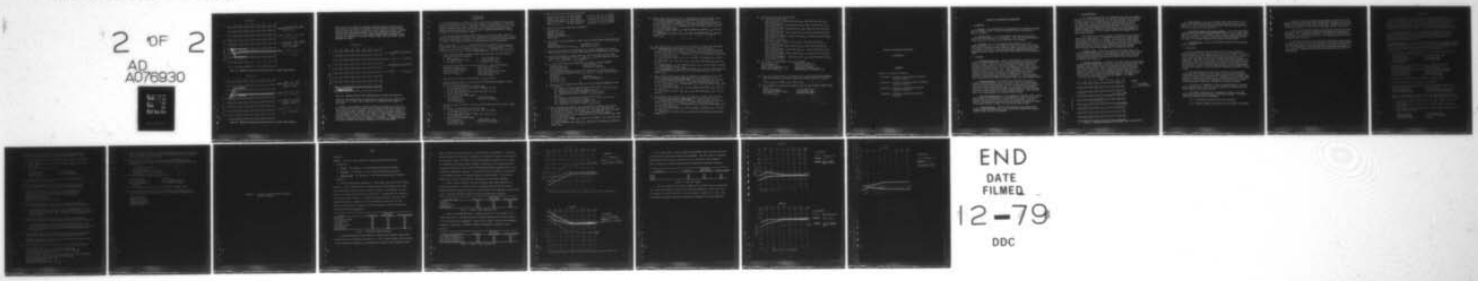

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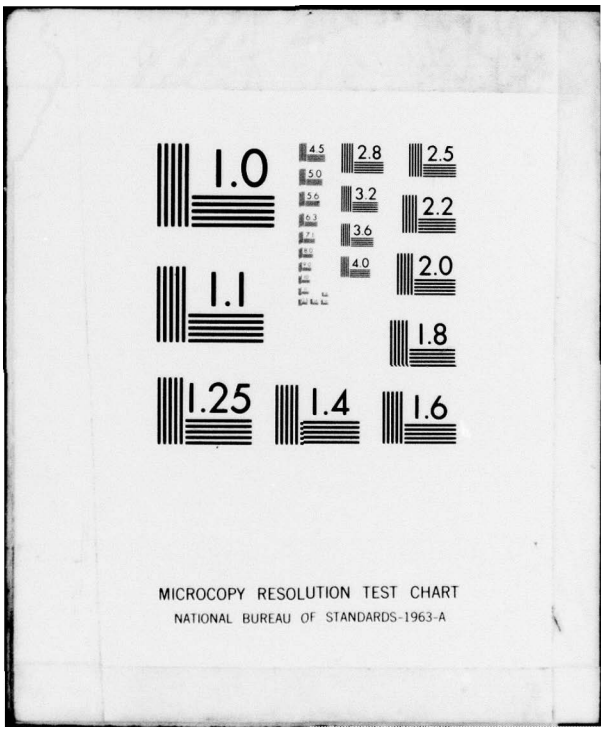
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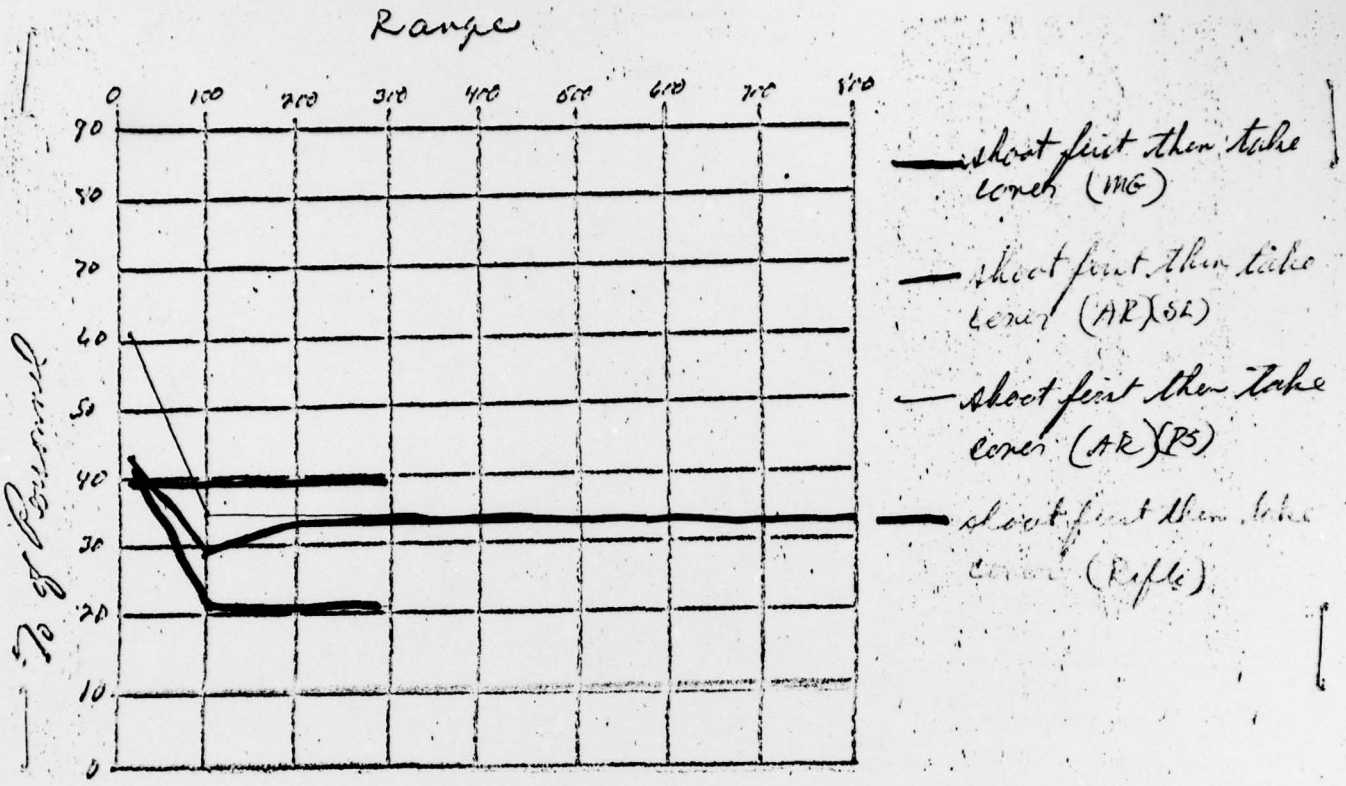


Chart #5. Immediate Reaction When Receiving Fire or Under Time Pressure

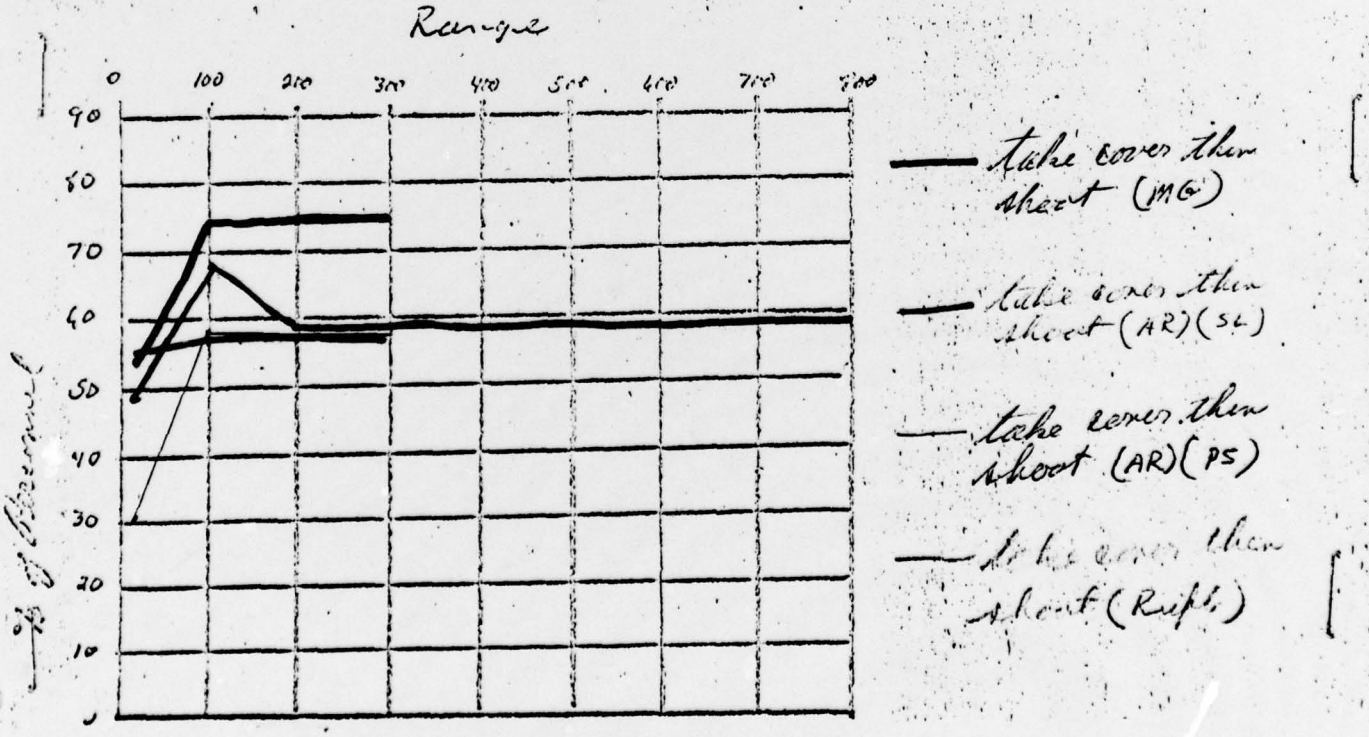


Chart #6. Immediate Reaction When Receiving Fire or Under Time Pressure.

Charts #5 and 6 indicate the correlation between range and reaction exists at extremely close ranges 0-100 meters, with 50-75 meters the predominant range at which the decision is made as to which reaction to employ. Extremely close range engagements generally call for elimination of the threat (shoot first then take cover) while longer ranges (beyond 50 meters), allow the firer the opportunity to protect himself (take cover then shoot) before engaging the target.

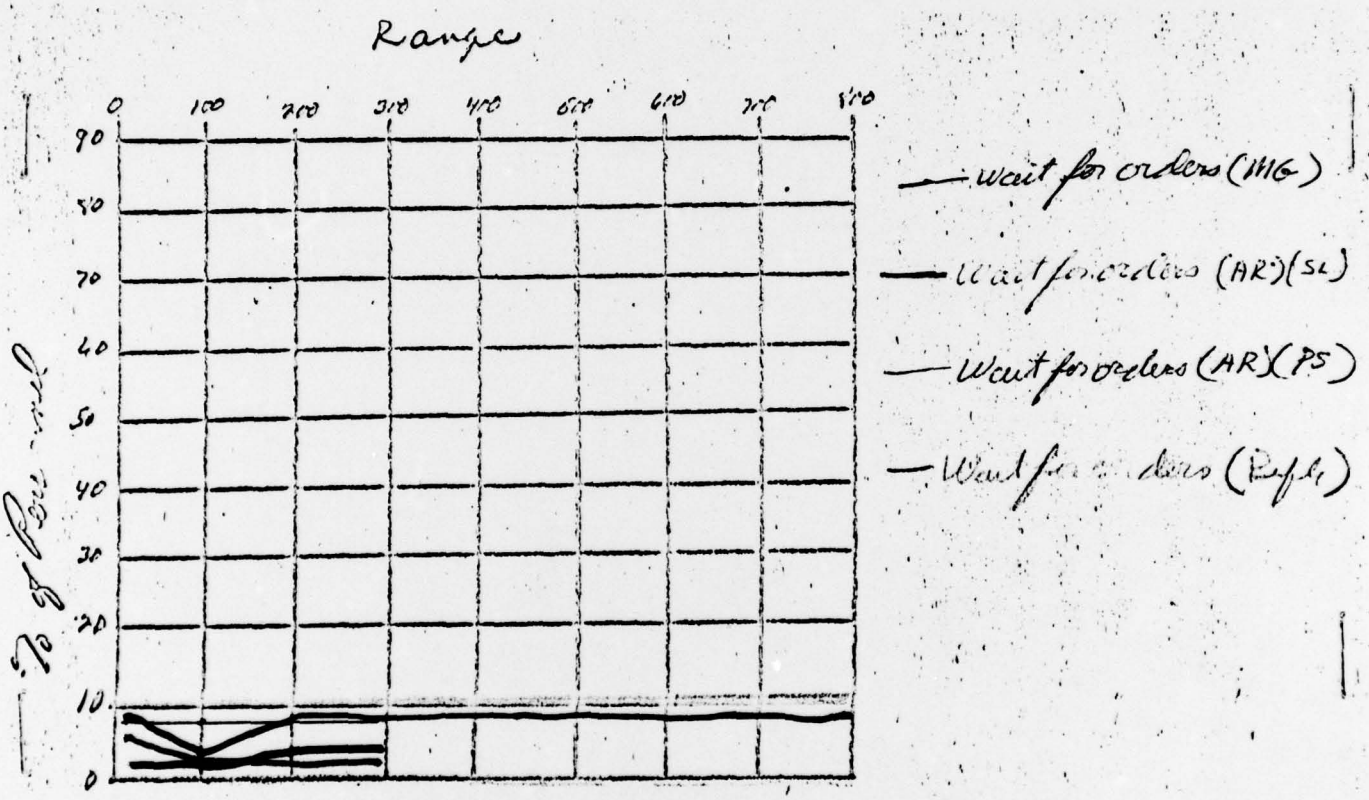


Chart #7. Immediate Reaction when Receiving Fire or Under Time Pressure.

Relatively few firers (3-7%), as indicated in chart #7 wait for orders while receiving fire or under time pressure prior to engaging enemy targets at any range.

5. Summary. Machinegunners (69%) are generally employed in the role previously assigned the rifle squad automatic rifleman and generally employ the same methods of target engagement, fire distribution, and react similar to the rifleman/automatic rifleman. Application of fires should be taught in conjunction with all squad training to enable all squad members to be familiar with and be able to employ these fires with any weapon. Recommendations as outlined in documents listed in addendum 1 to analysis of rifleman questionnaire should enhance the overall training of the 11B series MOS's.

QUESTIONNAIRE
MACHINEGUNNER

1. This questionnaire is designed to assist the Weapons Department of the United States Army Infantry School, Fort Benning, Georgia, in accumulating raw data concerning critical combat skills, knowledges, and performances required of the Light Weapons Infantryman MOS 11B10, which should upon being compiled and tabulated, provide certain information which will be used to improve marksmanship training programs for the Light Infantry Weapons.

2. You have been selected by your Squad Leader on the basis of your combat experience and knowledge to complete this questionnaire. Please answer each question and parts of questions as completely as possible by checking the appropriate block or blocks as they apply and return the questionnaire to your Squad Leader.

RANK E3 thru E6, MOS for which you were trained 11B,
Present MOS 11B, Length of time in Vietnam 5 (avg) (Months),
Squad _____, Platoon _____, Company _____,
Battalion _____, Brigade 17 Brigades, Division _____.

1. What in-country weapons training other than battlesight zero have you had since your arrival in Vietnam?
   a. M16A1 35
   b. M79 grenade launcher 33
   c. M72 (LAW) 25
   d. .45 cal pistol 13
   e. hand grenades 34
   f. claymore mines 36

2. What types of missions have you participated in? (Indicate frequency)
   airmobile assault 33
   mechanized operation 21
   cordon and search 32
   base security 37
   long range patrol 12
   night ambush 42
   short range night patrol 25
   search and destroy 34
   road clearing 23

3. How long have you been a machinegunner? _____ months

4. During daylight hours have you ever seen a clearly defined enemy and fired at him? YES 28 NO 15
   a. If yes, how many have you fired at? 988
   b. Do you know if you hit any of them? YES 16, NO 15
      If yes, how many? 89
   c. Do you think you hit any of them? YES 22, NO 7
      If yes, how many? 85
   d. What were the estimated ranges?
      0-50 meters 7
      50-150 meters 15
      150-300 meters 9
      300-500 meters 8
      beyond 500 meters 4

5. During the hours of darkness have you seen an enemy and fired at him? YES 18 NO 22.
   a. If yes, how many have you fired at? 159
   b. Do you know if you hit any of them? YES 6, NO 13
      If yes, how many? 17
   c. Do you think you hit any of them? YES 12 NO 6
      If yes, how many? 28
   d. What was the estimated range?
      0-10 meters 0
      10-30 meters 5
      30-50 meters 3
      50-100 meters 7
      beyond 100 meters 5

6. When do you use the bipod for the M60 MG?

All the time	26	at what ranges?	____ to ____	meters
Offense only	5	at what ranges?	____ to ____	meters
Defense only	7	at what ranges?	____ to ____	meters
Defense and Offense	30	at what ranges?	____ to ____	meters
Never	3	at what ranges?	____ to ____	meters

7. When do you use the tripod for the M60 MG?

All the time 5
Offense only 1
Defense only 12
Defense and Offense 2
Never 22

8. Which of the following means to engage targets during limited visibility have you used?

Aiming stake 14 — Horizontal log 7
Notched stake or tree crotch 2 — Base stake 3

9. Have you ever employed the machinegun in a position defilade role, that is when the gun and crew are hidden from enemy ground observation? YES 25 NO 14

10. Do you ever change the normal ratio of 4 ball to 1 tracer in the issued 7.62mm linked ammunition? YES 2 NO 40. If yes, what ratio do you use? ____ tracer to ____ ball.

11. At which of the following ranges have you engaged the most targets?

50-100 meters 21 — 500-700 meters 6
100-200 meters 17 — 700 meters or over 0
200-400 meters 7

12. Do you preset the (range estimate) rear sight slide in relation to the mission/operation expected? YES 11 NO 29. If yes, at which of the following?

100 meters 3 — 800 meters 1
300 meters 7 — Other (explain) 0
500 meters 2

13. Using only the integral bipod mount, how are you normally employed in the

a. Offense -
   (1) Organic to rifle squad (Automatic Rifle role). 8
   (2) Attached to rifle squad 26
   (3) Supporting the platoon (in pairs) 7
   (4) Supporting the platoon (singly) 4

b. Defense -
   (1) Organic to rifle squad (Automatic Rifle role) 6
   (2) Attached to rifle squad 26
   (3) Supporting the platoon (in pairs) 11
   (4) Supporting the platoon (singly) 6

14. When engaging enemy targets, seen or suspected, at ranges from 0 to 50 meters and under extreme time pressure what type fire would you use?

a. carefully aimed 1; quick aimed 7; pointing type not using sights fired from the shoulder 6; pointing type from the hip 30.
b. 2-3 round bursts 1; 6 round bursts 10; 6-10 round bursts 20; more than 10 round burst 9.
c. fire at single targets 2; fire at all targets at one time 10; fire at the area 27.
d. shoot first then take cover 17; take cover then shoot 19; wait for orders 3.

15. When engaging enemy targets seen, or suspected, at ranges from 50 to 150 meters, while receiving enemy fire, what type fire would you use?
a. carefully aimed 3 ; quickly aimed 18 ; pointing type not using the sights, fired from the shoulder 7 ; pointing type fired from the hip 15 .
b. 2-3 round bursts 1 ; 6 round bursts 9 ; 6-10 round bursts 19 ; more than 10 round bursts 8 .
c. fire at single targets 3 ; fire at groups of personnel 12 ; fire at the area 22 .
d. shoot first then take cover 11 ; take cover then shoot 26 ; wait for orders 1 .

16. When engaging enemy targets seen, or suspected, at ranges from 150 meters or more, while receiving enemy fire, what type of fire would you use?
a. carefully aimed 18 ; quickly aimed 17 ; pointing type not using the sights, fired from the shoulder 8 ; pointing type fired from the hip 5 .
b. 2-3 round bursts 2 ; 6 round bursts 10 ; 6-10 round bursts 23 ; more than 10 round bursts 6 .
c. fire at single targets 2 ; fire at groups of personnel 14 ; fire at the area 24 .
d. shoot first then take cover 11 ; take cover then shoot 20 ; wait for orders 3 .
e. In the offense, use the standing position 10 ; use the assault position 13 ; use the prone position 19 .
f. In the defense, use the standing position 0 ; use the assault position 0 ; use the sitting position 23 ; use the prone position 3 ; use a foxhole 23 .

17. When engaging enemy targets seen, or suspected, at ranges from 50 to 150 meters, while not receiving enemy fire, what type fire would you use?
a. carefully aimed 17 ; quickly aimed 11 ; pointing type, not using the sights, fired from the shoulder 2 ; pointing type from the hip 5 .
b. 2-3 round bursts 3 ; 6 round bursts 14 ; 6-10 round bursts 20 ; more than 10 round bursts 5 .
c. fire at single targets 13 ; fire at groups of personnel 12 ; fire at the area 12 .
d. shoot first then take cover 12 ; take cover then shoot 17 ; wait for orders 8 .

18. When engaging enemy targets seen, or suspected, at ranges from 150 meters or more, while not receiving enemy fire what type fire would you use?
a. carefully aimed 38 ; quickly aimed 4 ; pointing type, not using the sights, fired from the shoulder 2 ; pointing type from the hip 5 .
b. 2-3 round bursts 4 ; 6 round bursts 14 ; 6-10 round bursts 21 ; more than 10 round bursts 3 .
c. fire at single targets 11 ; fire at groups of personnel 12 ; fire at the area 14 .
d. shoot first then take cover 10 ; take cover then shoot 19 ; wait for orders 8 .

19. How effective has your MG fire been?
    a. daylight at ranges from:
    (1) 0-50 meters: hardly ever miss 33 ; about half and half 8 ; hardly ever hit 0 .
    (2) 50-150 meters: hardly ever miss 33 ; about half and half 8 ; hardly ever hit 0 .
    (3) 150-300 meters: hardly ever miss 10 ; about half and half 29 ; hardly ever hit 3 .
    (4) 300-500 meters: hardly ever miss 5 ; about half and half 31 ; hardly ever hit 5 .
    (5) beyond 500 meters: hardly ever miss 1 ; about half and half 26 ; hardly ever hit 13 .
    b. darkness at ranges from:
    (1) 0-50 meters: hardly ever miss 19 ; about half and half 16 ; hardly ever hit 0 .
    (2) 50-150 meters: hardly ever miss 9 ; about half and half 28 ; hardly ever hit 2 .
    (3) 150-250 meters: hardly ever miss 0 ; about half and half 28 ; hardly ever hit 6 .
    (4) 250-350 meters: hardly ever miss 0 ; about half and half 18 ; hardly ever hit 13 .
    (5) beyond 350 meters: hardly ever miss 0 ; about half and half 14 ; hardly ever hit 17 .

20. What kinds of grenades have you used in combat?

M34 WP smoke 14	AN/M8 white smoke 7
M57,M59 impact 5	CS riot control 13
M26A1, M33 fragmentation 39	Incendiary (thermate) 8
M18 colored smoke 37	MK3A2 Offensive (concussion) 13

21. When throwing hand grenades how often have you used the cook-off technique (pull pin, release the handle allowing the striker to fall, and throw)?

    Often 2 ; seldom 11 ; never 27 .

22. What weapons in addition to the M60 MG have you used during a combat operation?

M16A1 rifle 37	.45 cal pistol 14
M79 grenade launcher 23	hand grenades 37
M72 (LAW) 14	claymore mines 35

ANALYSIS OF QUESTIONS PERTAINING

TO GRENADIERS

CONTENTS

ANALYSIS OF GRENADIER QUESTIONNAIRES

1. BACKGROUND:

a. Source. This questionnaire was completed by 80 grenadiers serving with 23 Brigades in RVN. These 80 individuals had an average time in RVN of 5.4 months.

b. MOS and Grade. All of the personnel were trained in the MOS of 11B with the exception of 4 individuals. The rank of these grenadiers varies from E-3 to E-5 with time in RVN from 2 to 12 months.

c. Validity. Not all the questions were answered by all the grenadiers, resulting in a mathematical unbalance in some of the answers. The questions concerning target detection, known and probable hits, appear to be modest in nature, in that the grenadiers indicated detecting and engaging numerous targets yet admitted to fewer known hits than questioned hits.

2. ANALYSIS:

a. Training Requirements. Answers from Question 1 indicate that the majority of replacements in RVN are receiving additional light Infantry weapons training. Over 59% of these individuals received additional training in the M16A1 Rifle, M79, M60 machinegun, the M72 (LAW), Hand Grenades, and Claymore Mines. 24% of the individuals received additional training in the .45 caliber pistol. These grenadiers are also using a variety of weapons while working in an Infantry Platoon in combat indicated by the answers to question 16 clarifying the need for the additional in-country weapons training in question 1. These grenadiers have also employed hand grenades of various types, and also Claymore mines.

b. Types of Missions. Over 80% of the individuals have been on airmobile assault missions and base security. 92% of the individuals have been on night ambush patrols, this is the type mission the greatest majority of these grenadiers have been on. Over 60% of the personnel have been on short range night patrols, reconnaissance in force missions, cordon and search missions, and road clearing operations. Over 30% have been on long range patrols and riverine assault forces.

c. Types of Ammunition Used. The grenadiers in RVN are using a fairly wide variety of M79 Ammunition. The questionnaires indicate the HE and Canister Rounds were used by over 80% of the individuals. Over 30% used the Star Parachute Illumination and Star Cluster Illumination Rounds. 15% used the Tactical CS Round, and only 8% used the WP round.

d. Target detection. 58% of these grenadiers have detected and engaged targets during daylight hours and 37% have detected and engaged targets during the hours of darkness.

e. Hit Probability.

(1) During daylight hours 46 individuals have seen and engaged with M79 fire; 120 enemy targets. Of these, 26 individuals know they hit 30 enemy targets and 37 think they hit 77 enemy targets. The majority of these targets were between 50 meters and 350 meters with 10% of the individuals engaging targets beyond 350 meters and 29% of the individuals engaging targets less than 50 meters. The majority of the targets engaged were between 50 to 100 meters; these were engaged by 47% of the individuals. Of the targets detected and engaged, the hit probability was 86%.

(2) During the hours of darkness, 30 grenadiers have engaged a total of 93 enemy targets. 4 grenadiers know they hit 4 targets and 3 individuals think they hit 17 targets. The majority of these targets were engaged at ranges from 10 to 100 meters. Only 48% of the individuals indicated an answer for this question which could infer that these grenadiers have not engaged targets during the hours of darkness. Of the targets detected and engaged the hit probability was 23%.

f. Method of Fire. 85% of the individuals indicated they do not use the marked sling method for high angle fire, yet 74% of these individuals indicated engagement of the various type targets under question 9 inferring they may be using some other method, or do not know what the marked sling method is.

g. Sighting Techniques. Individuals were given the following options to identify the sighting techniques they used while receiving enemy fire: Carefully aimed, quickly aimed, pointing type not using sights and fired from the shoulder. Chart 1 indicates the number of grenadiers that use the sights to deliver carefully or quickly aimed fire at targets at various ranges while receiving enemy fire and those that do not use sights, but utilize the pointing technique. It appears that the majority of these individuals use the sights at all ranges, except at ranges out to 75 meters.

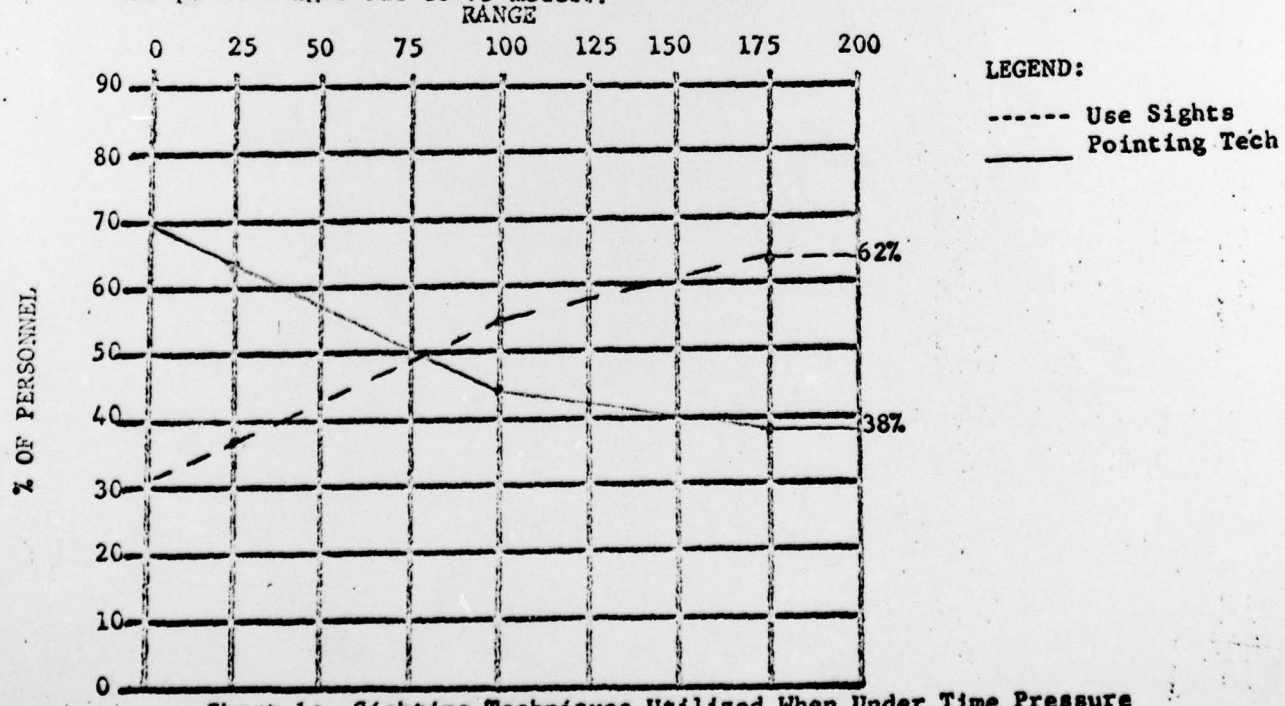


Chart 1: Sighting Techniques Utilized When Under Time Pressure

h. Hand Grenades. The type of grenade used by the majority of the individuals are the fragmentation with time delay fuze and the colored smoke type. Only 5% of the personnel use the "cook off" technique often, 21% use it seldom, and 70% never use it.

i. Additional Weapons Carried by Grenadiers. 31% of the individuals indicated they carry another weapon besides the M79. 76% of these individuals are carrying the .45 caliber pistol, and 24% carry the M16A1 rifle. 36% of the personnel indicated they carried no other weapon and 33% did not answer the question inferring they carried no other weapon.

j. Starlight Scope. 66% of the individuals have used the Starlight Scope in combat.

3. Conclusions:

a. It is recognized that when firing at night, the individual, although engaging a known target, may have very little chance of determining whether or not the engaged target was a hit or a miss. The practice by the enemy of removing their dead or wounded from the battlefield (especially under cover of darkness) precludes an accurate assessment of target hits. With the above in mind, the validity of the conclusion that our present night firing techniques result in a low hit probability may be questioned. If this conclusion were accepted, it may be advantageous to place more emphasis in training on night engagement techniques of night firing.

b. The questionnaires indicate that the types of 40mm ammunition extensively used on operations are limited to high explosive canister. A question can be raised concerning the availability of the various types of ammo in Vietnam to the combat units. A further question can be raised concerning the knowledge of the commanders involved of how the various types of ammo may be used most efficiently in a given situation.

c. The need for a grenadier to carry a secondary weapon in Vietnam should receive review. Only 31% of the individuals answering questionnaires indicated that they carry one.

d. The marked sling method for engagement of targets using high angle fire is seldom used according to the questionnaires. A review of this method should be made to determine:

(1) is the method appropriate for use in Vietnam?

(2) is proper emphasis being placed on this method in training?

e. Questions concerning methods of engagement of targets beyond 150 meters, while receiving enemy fire, indicate that pointing fire not using sights is used by 37% of individuals questionned. Whether or not this is the proper technique of fire to use at this range could be investigated.

f. 18% of the individuals answering question #17 indicated that they have never used a Starlight in Vietnam (either mounted on the weapon or unmounted). This figure seems excessive. A review of the availability of Starlights to our units and the use of the Starlight Scope in tactical operations seems justified.

g. The large majority of the individuals questionned indicated that they have never used the cook-off technique of utilizing the hand grenade. This indicates either the situation has never occurred warranting the use of this technique or the individuals do not know when to properly use this technique. Another reason could be the individuals' lack faith in this method.

QUESTIONNAIRE

GRENADIER

This questionnaire is designed to assist the Weapons Department of the United States Army Infantry School, Fort Benning, Georgia, in accumulating raw data concerning critical combat skills, knowledges, and performances required of the Light Weapons Infantryman, MOS 11B10, which should, upon being compiled and tabulated, provide certain information which will be used to improve marksmanship training programs for the Light Infantry Weapons.

You have been selected by your Squad Leader on the basis of your combat experience and knowledge to complete this questionnaire. Please answer each question and parts of questions as completely as possible by checking the appropriate block or blocks as they apply and return the questionnaire to your Squad Leader.

RANK 80 Individuals, MOS for which you were trained 76 - 11B; 4 - 11C, present MOS 11B, length of time in Vietnam 5.4 (Avg) (Months), Squad _____, Platoon _____ Company _____, Battalion _____, Brigade 23/4, Division _____.

1. What in-country weapons training other than battlesight zero have you had since your arrival in Vietnam?

M16A1 Rifle 74	.45 Caliber pistol 19
M79 Grenade Launcher 70	Hand Grenades 57
M60 Machinegun 57	Claymore Mines 65
M72 (LAW) 47	

2. What types of missions have you been on? (Indicate frequency)

Airmobile Assault 65	Night Ambush 73
Mechanized Offensive Operation 33	Short Range Night Patrol 48
Cordon and Search 63	Reconnaissance in force 55
Base Security 67	Road Clearing 53
Long Range Patrol 28	Riverine Assault 25

3. Have you been ambushed by enemy forces? Yes 44 No 36

4. How long have you been a grenadier? ____(Months).

5. What type 40mm ammunition have you used on operations (check types)?

High Explosive 69	Tactical CS 12
White Phosphorous 6	Star Parachute Illumination 30
Canister "buckshot" 67	Star Cluster Illumination 27

6. During daylight hours, have you ever seen a clearly defined enemy and fired at him? Yes 46 No 31 If yes, how many have you fired at? 120

   a. Do you know if you hit any of them? Yes 26 No 38 If yes, how many? 30

   b. Do you think you hit any of them? Yes 37 No 19 If yes, how many? 77

   c. What are the estimated ranges at which you engaged targets with the 40mm Grenade Launcher?

30-50 meters 23	200-350 meters 24
50-100 meters 37	beyond 350 meters 8
100-200 meters 32	None 1

7. During the hours of darkness, have you seen an enemy and fired at him? Yes 38 No 49 If yes, how many have you fired at? 93

   a. Do you know if you hit any of them? Yes 7 No 42 If yes, how many? 4
   b. Do you think you hit any of them? Yes 19 No 32 If yes, how many? 17
   c. What was the estimated range?

0-10 meters 1	50-100 meters 11
10-30 meters 9	beyond 100 meters 7
30-50 meters 10	

8. Do you use a marked sling to engage targets with the M79 using high angle fire? Yes 11 No 67

9. When using the marked sling for high angle fire with the 40mm Grenade Launcher, what type targets do you engage (check type)?

   Personnel in the open at ranges of less than 200 meters 9
   Personnel in the open at ranges greater than 200 meters 8
   Targets concealed by treelines or other obstructions 10
   Observed targets only 10
   Unobserved targets only 1
   Any target without overhead cover 11

10. When engaging observed or suspected enemy targets at ranges from 0 to 50 meters while receiving enemy fire what type fire do you use?

    a. carefully aimed 3, quickly aimed 27, pointing type not using sights and fired from the shoulder 50, other (specify)_____
    b. Shoot first then take cover 29, take cover then shoot 33, wait for orders 8.

11. When engaging observed or suspected enemy targets at ranges from 50 to 150 meters, while receiving enemy fire, what type fire do you use?

    a. carefully aimed 21, quickly aimed 26, pointing type not using the sights and fired from the shoulder 38, other (specify) 1
    b. Shoot first then take cover 21, take cover then shoot 31, wait for orders 6.

12. When engaging observed or suspected enemy targets at ranges beyond 150 meters, while receiving enemy fire, which type fire do you use?

    Carefully aimed 29, quickly aimed 24, pointing type not using sights and fired from the shoulder 32.

13. Which types of hand grenades have you used in combat (check types)?

    Fragmentation with time delay fuze (M26A1 or M33) 70
    Fragmentation with impact detonating fuze (M57 or M59) 16
    White Phosphorous Smoke (M34) 17
    CS Riot Control - "Baseball" or Canister-Shaped (M7 or M25 series) 23
    Chemical Smoke - white or colored (AN/M8 or M18) 41
    Offensive "Concussion" (MK3A2) 22
    Illuminating (MKI) 11
    Incendiary "thermate" (AN/M14 TH_3) 10

14. When throwing hand grenades, how often do you use the "cook-off" technique (pull pin, release the handle allowing the striker to fall, and throw)? Often 4; Seldom 16; Never 56.

15. Do you carry an M16A1 rifle with pump action 40mm Grenade Launcher attached? Yes 1 No 74 If not, what weapon do you carry in addition to the M79?

.45 Caliber Pistol 18
M16A1 Rifle 10
Colt Submachinegun (XM177E2) 0
None 15

16. Which other weapons have you used in combat?

M16A1 Rifle 72
M60 Machinegun 31
Colt submachinegun 1
(XM177E2)
M72 LAW 36
M18A1 Claymore Mine 62
.45 Caliber Pistol 28

17. Have you used the starlight scope (AN/PVS-2)? Yes 53 No 21

18. At what ranges have you engaged the enemy using the starlight scope and hit your target? (Do not answer if question 23 is answered "no")

50-100 meters 5
100-200 meters 1
200-350 meters 2
Beyond 350 meters 1
Observe Only 7

Addendum 1: Analysis of Squad Leader and Platoon Sergeant Responses

.DDENDUM 1.

SUBJECT: Analysis of Squad Leader and Platoon Sergeant Questionnaires

1. Background:

a. Source. See addendum 1 to the Rifleman Questionnaire Analysis.

b. Validity. See addendum 1 to the Rifleman Questionnaire Analysis.

c. MOS and Grade. See addendum 1 to the Rifleman Questionnaire Analysis.

2. Analysis.

a. Training Requirements (Question 1). These NCO's were asked the following question: "What in-country weapons training, other than battlesight zero, have your squad members had since their arrival in Vietnam. One grenadier from each squad of one platoon was asked the same question. A comparison of the responses received are shown in Chart 1. In order to correlate answers from these three organization levels, percentages of total responses at each level are used. Based on these figures it appears that the NCO responses certainly validate the data received from the grenadiers.

Weapon	Responses		
	Grenadier	Squad Leader	Platoon Sergeant
M16A1 Rifle	92%	94%	89%
M79 Grenade Launcher	88%	79%	88%
M60 Machinegun	71%	79%	85%
M72 (LAW)	59%	73%	77%
.45 Caliber Pistol	24%	19%	42%
Hand Grenades	71%	75%	88%
Claymore Mines	81%	88%	92%

Chart 1. In-Country Weapons Training

b. Aiming Techniques utilized under time pressure (Plt Sergeant, Squad Leader Questionnaires 14C, Grenadier questions 10, 11, 12). Multiple answers were received to these questions, therefore, all percentages are based on total responses rather

than the number of squads and platoons which submitted questionnaires. Using this system of analysis the percent of responses are displayed on charts 2a and 2b below, at the various ranges. The NCO's validate the grenadier responses out to a range of 75 meters; at the ranges beyond 75 meters a separation in responses exist with the platoon sergeant and squad leader validating each others responses which do not validate the grenadiers responses. This could infer that the NCO's are not aware of the grenadiers methods in engaging targets at various ranges. This inferrs there may be a lack of supervision of the grenadiers in the rifle platoons.

c. Types of 40mm ammunition used (Plt Sergeant, Squad Leader questions 16, grenadier question 5). The same system of analyzing responses that was used in analyzing additional weapons training is used to analyze test responses, based on this chart 3 shows that the NCO's appear to validate the grenadier responses.

Ammunition Type	Responses Grenadier	Squad Leader	Platoon Sergeant
uckshot	84%	87%	100%
Tactical CS	15%	11%	27%
Parachute Illum	38%	39%	46%
Star Cluster	34%	35%	38%

Chart 3. Types of 40mm Ammunition Used

d. Types of Hand Grenades Used. (Grenadier question 13, plt sergeant, sqd leader question 17). The same system of analyzing responses used in item 2b and c is used to analyze these responses. Based on this, Chart 4 shows the NCO responses compared to grenadiers. The NCO's validate the grenadier's answers to their question.

Types of Hand Grenades	Responses Grenadier	Squad Leader	Platoon Sergeant
M59 Impact Detonating	20%	6%	12%
M33 Baseball Fragmentation	88%	69%	65%
M34 White phosphorous	21%	12%	31%
M3A2 Offensive (Concussion)	28%	27%	35%

Chart 4. Types of Hand Grenades Used

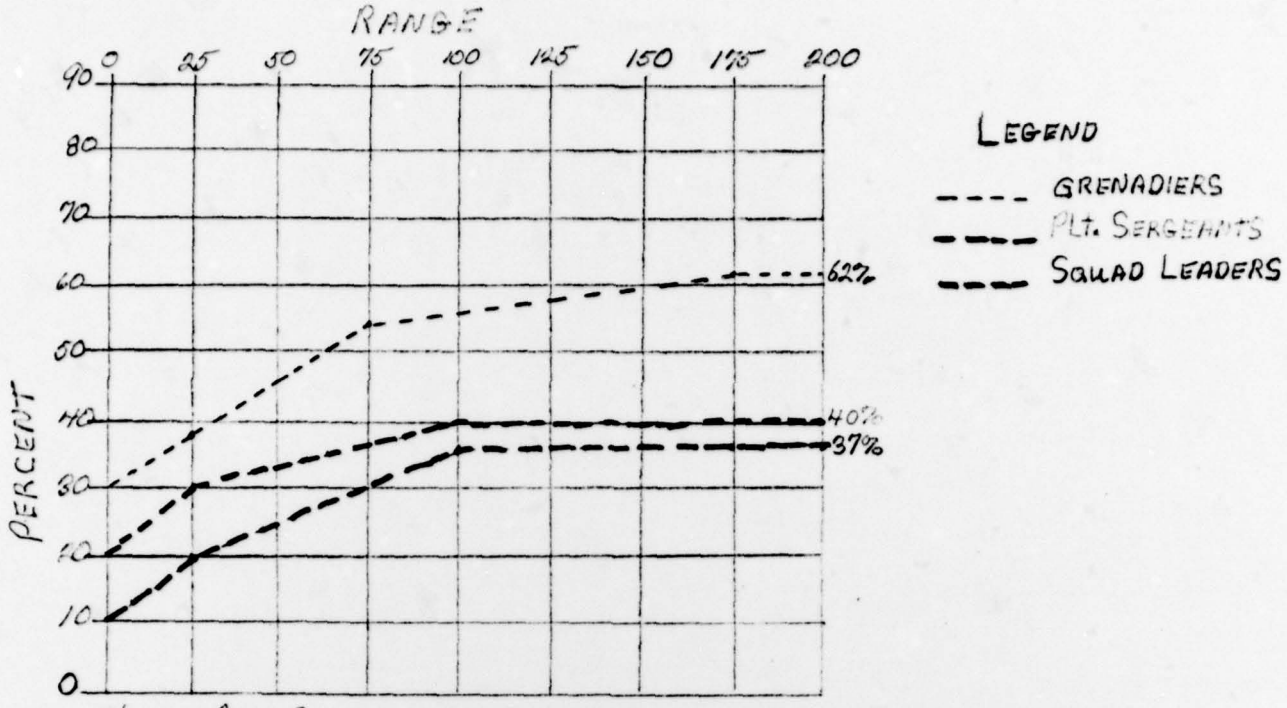


CHART 2A, SIGHTING TECHNIQUES UTILIZED UNDER TIME PRESSURE.

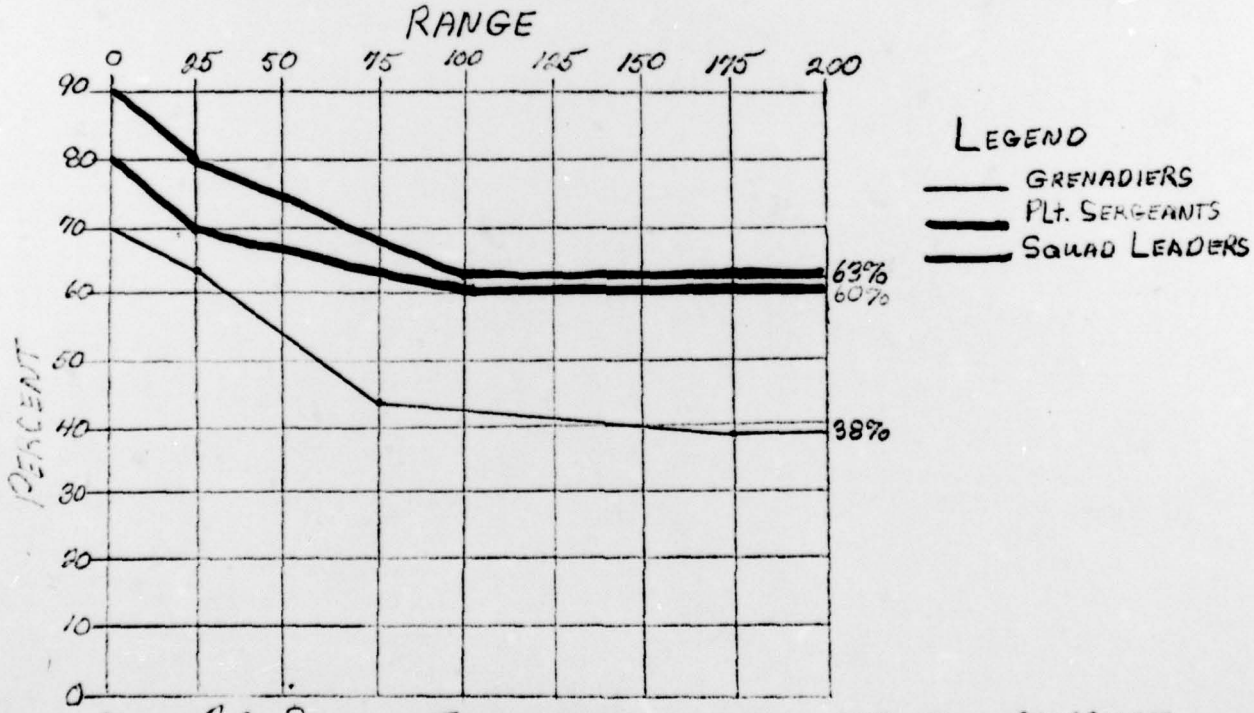


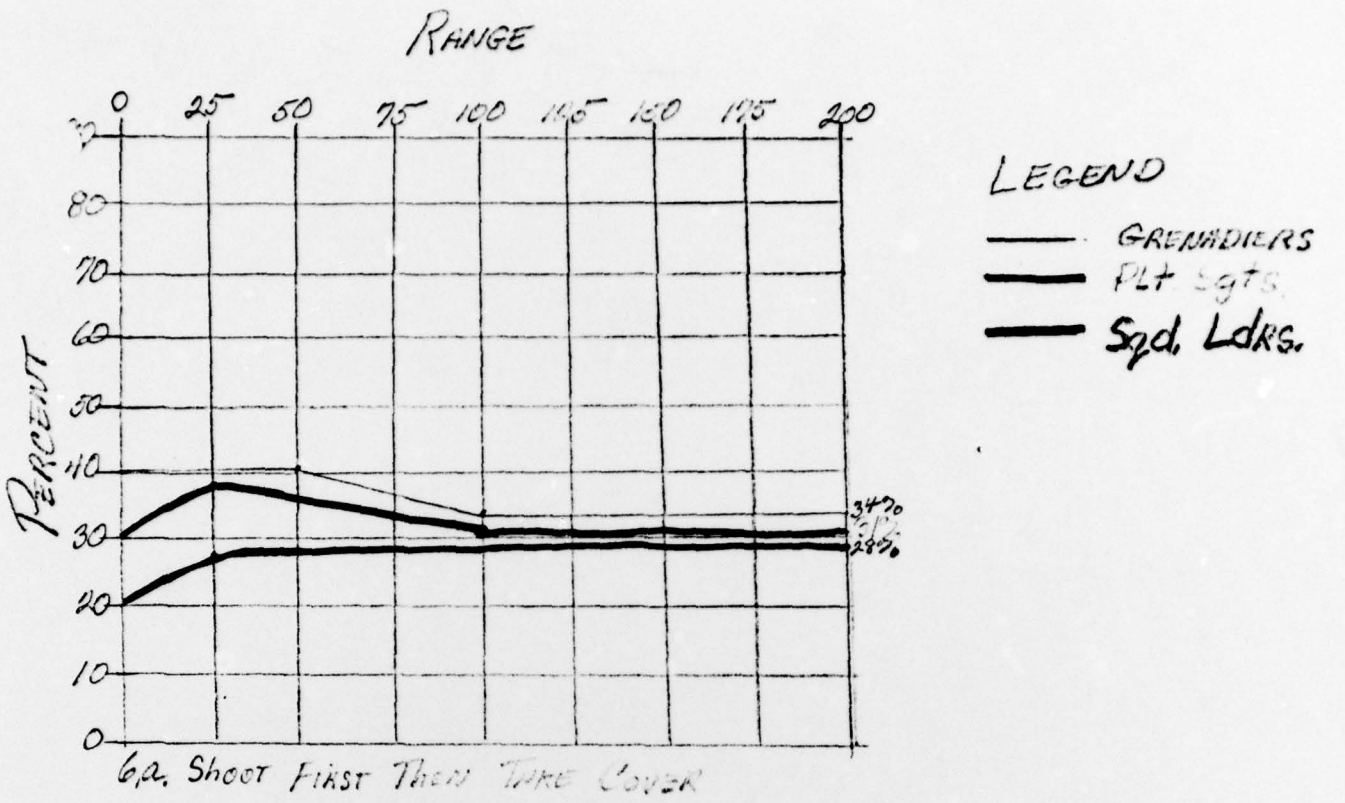
CHART 2B, POINTING TECHNIQUES UTILIZED UNDER TIME PRESSURE.

e. The squad leader, platoon sergeant and grenadiers were asked how often they use the cook off method when thorwing hand grenades. The same system of analyzing the responses that is used in item 2a, c, and d, is used for these responses. Chart 5 depicts how the NCO's responses have validated the Grenadier responses.

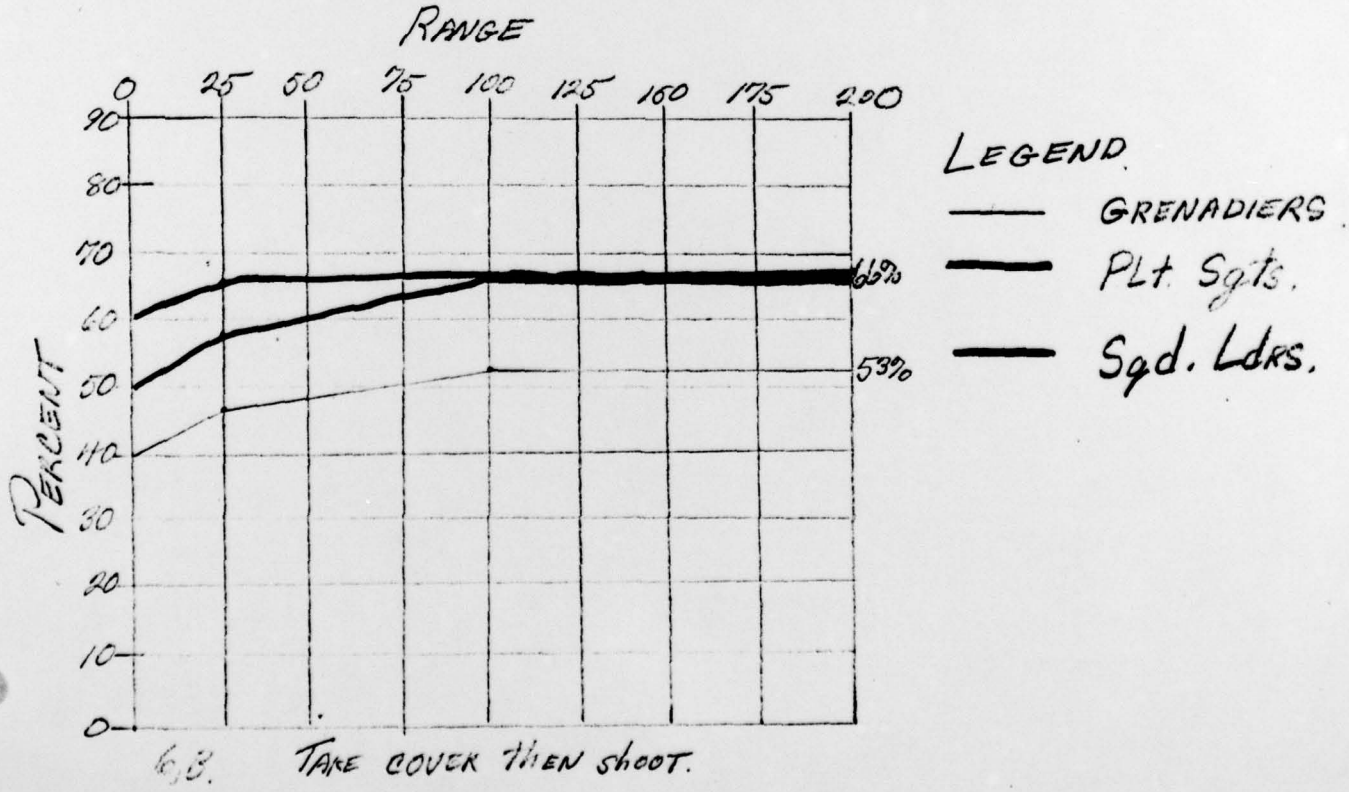
Times Used	Responses Grenadiers	Squad Leaders	Platoon Sergeant
Often	5%	6%	8%
Seldom	20%	13%	15%
Never	70%	77%	81%

Chart 5. "Cook Off" Method

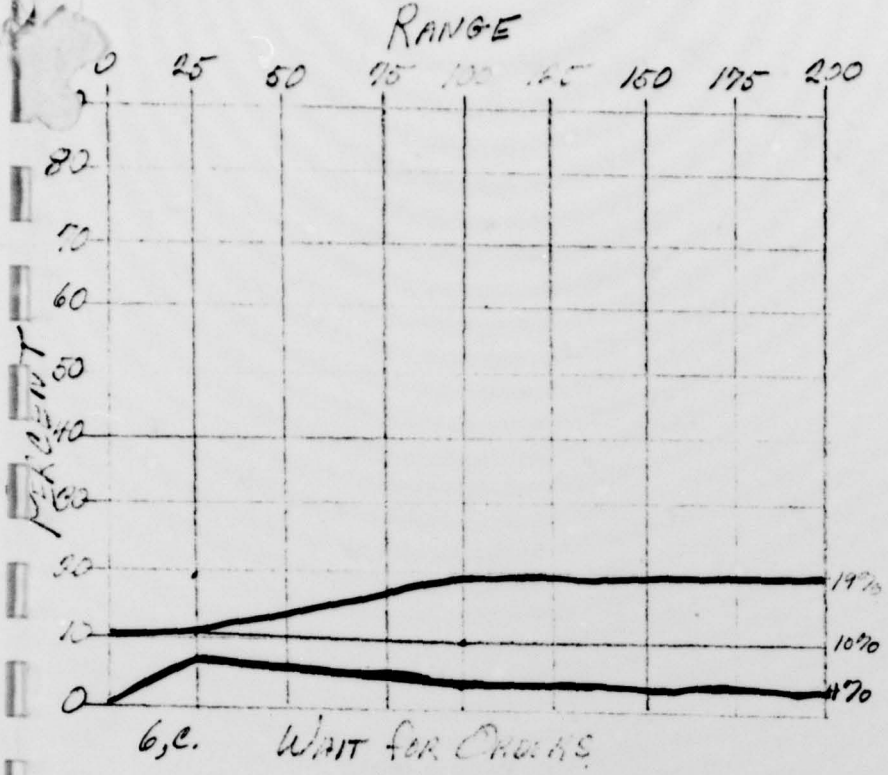
f. The squad leaders and platoon sergeants were asked how often the grenadiers took those three immediate actions while receiving enemy fire: shoot first then take cover; take cover then shoot; wait for orders. Charts 6 a, b, and c. show how the NCO's responses validate the grenadiers responses to the same questions.



6.a. Shoot First Then Take Cover



6.b. Take Cover Then Shoot.



LEGEND

—— GRENADIERS

—— PLT SGTS

—— SQD LDRS.